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ABSTRACT

This is a study of the high dropout rate in distance education courses. Early studies of this phenomenon presumed that the majority of distance education students were nontraditional students. However, this study suggests that many traditional students now participate in distance education courses, and the author examined the problem within the context of this mixed student population. The three main purposes of the study were to: (1) determine whether differences in retention rates existed between the two types of students; (2) identify any interaction effects between selected variables and the type of student; and (3) attempt to identify any differences in perception in faculty contact between completers and noncompleters. The study looked at the transcripts of all 296 students enrolled in telecourses during Tallahassee Community College's (Florida) fall semester. The author also examined 65 respondents who filled out an initial survey. These respondents were a subset of the 296 total students. Results indicated that of the students, 128 (43%) were traditional, while 168 (57%) were nontraditional. Of the traditional students, 55 were completers; of the nontraditional students, 83 were completers. The study also found that among the respondent group, the grade point average for nontraditional students was higher (2.8) than that of traditional students (2.3). Appended are the survey instruments, comparison tests, letters and forms. (Contains 59 references.) (NB)

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ED 459 885

THE FLORIDA STATE UNIVERSITY

COLLEGE OF EDUCATION

RETENTION IN DISTANCE EDUCATION TELECOURSES AND PERCEPTIONS OF FACULTY CONTACT: A COMPARISON OF TRADITIONAL AND NONTRADITIONAL COMMUNITY COLLEGE STUDENTS

By
WENDY A. GILBERT

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Department of Educational Leadership
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

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The members of the Committee approve the dissertation of Wendy Gilbert defended on April 14, 2000.

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For My Husband
Ron

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ABSTRACT

Research on retention in higher education evolved from models that focused on traditional students, that is, those students who were attending four-year institutions full time and who were between the ages of 18 and 24. In the 1970s and 1980s, the numbers of nontraditional students who were older and attending college part-time, increased. Retention research was adapted and eventually changed to study problems unique to these students. In the past several years, distance education (education involving the separation of student and teacher either in place or time) became popular as an alternative to the traditional college classroom. Originally designed for the nontraditional students who had problems finding time or the means to commute to classes, distance education more recently became popular among both nontraditional and traditional students.

I had three primary purposes for this study. First I attempted to determine whether differences in retention rates existed between the two different types of students, traditional and nontraditional, taking the same distance education telecourses. Second, I attempted to identify any interaction effects between the independent variable of student type (traditional or nontraditional) and other variables (gender, grade point average, prior experience with telecourses, and number of hours spent working and/or volunteering each week). Finally, I attempted to identify differences in perceptions of faculty contact between traditional and nontraditional students and differences in perceptions of faculty

contact between completers and noncompleters of distance education telecourses.

Using the chi-Square and Fisher's Exact tests no differences in completion rates between traditional and nontraditional students were found in either the group of all 296 telecourse students or the respondent group.

Analysis of variance (ANOVA) testing showed no interaction effects between student type and gender that influenced completion rates for either the group of all 296 telecourse students or the respondent group. ANOVA testing showed no interaction effects between student type and grade point average (GPA) that influenced completion rates for either the group of all 296 telecourse students or the respondent group. However, in the group of all 296 telecourse students, GPA taken alone was found to be significantly related to completion. Using ANOVA testing on just the 65 respondents, it was found that past success with distance education telecourses did not have an interaction effect with student type that influenced the completion rate of the respondents, but the numbers indicated that 70% of the students who had previously completed a telecourse with a grade of “C” or better, completed the study's telecourse, while only about 53% of those students who had not previously completed a telecourse with a grade of “C” or better, completed the telecourse for the study. Further testing indicated that this difference was not significant. Using just the respondent group, the number of hours students spent working and/or volunteering did not appear to have any interaction effects with student type that influenced completion, as indicated by ANOVA testing.

Using information from 38 completers of the respondent group who returned the second survey instrument, Wilcoxon and Mann-Whitney U tests showed no differences between traditional and nontraditional students' perceptions of faculty contact. The same tests were run using information from the 44 respondents who returned the second survey to compare completers' and noncompleters' perceptions of faculty contact. There were no significant differences found. In both of these cases, generalizability was limited to the small group of students who returned the second survey.

CHAPTER I

INTRODUCTION

Historically, the use of what is now commonly referred to as "distance education" has been widespread and includes many iterations. In the 1800s, the physical distance that prevented face-to-face education in many parts of the world led to education via mail, and, later in the century, telephone or radio. In the 1950s and 1960s, the more technologically advanced countries turned to audio-teleconferencing (multiple participants on one phone line) and television to increase access to education when distance was a barrier. In the 1980s and 1990s, video tapes and computer instruction became more prevalent (Brown & Brown, 1994). Today, increased and improved access to the Internet has allowed more students to communicate from their homes to teachers, schools, and other students around the world. Internationally, many educational institutions still use print, radio and other more basic methods of communication to educate populations that might not have had access to a formal classroom.

In the United States, there was a recent shift of focus in the use of distance education methods to extend higher education opportunities. Instead of concentrating on nontraditional students who may not have had access to a college campus, educational institutions have been increasingly interested in using technology and distance education for the traditional college student population (Guernsey, 1998). As policy-makers struggle with shrinking state budgets and overcrowded classrooms, distance education has often been viewed as the key to access--not just for the learner who is two hundred miles away but also for the student who is two blocks away (Pascarella & Terenzini, 1998; Seehusen, 2000). In addition, the student with a physical disability may find that his or her special equipment needs may be better served at one location rather than in many different classrooms. Time, as well as distance, has become an important factor to those students who have family or job commitments that have hindered their ability to attend classes according to a rigid schedule.

Because more higher education institutions in the United States have developed distance education programs, the number of studies aimed at identifying strategies to retain the students in these programs has increased. Research in the area of retention has progressed through various stages. Early research focused on traditional students who were typically between the ages of 18 and 24, lived on or near campus, and attended college full time. Later research, especially in the 1980s, shifted to the "nontraditional" students, or students who were older, attending college part time, and who may or may not have lived on or near campus. Studies on retention in distance education considered students who took distance education courses "nontraditional" in part because most of the students in these studies resembled nontraditional students; that is, they were older, lived off campus and/or attended classes part time.

New information has emerged that indicates a shift taking place, particularly in the population of students who have been taking distance education courses. Although many traditional universities and colleges developed distance education programs to accommodate nontraditional learners, there has been recent evidence that suggests that many younger, full-time, on or near-campus students have been taking advantage of the technology and convenience of distance education courses. Pascarella and Terenzini (1998) note that “The World Wide Web, gophers, file-transfer protocols, listservs, and bulletin boards, as well as more structured forms of distance education (eg., audio- and teleconferencing, computer conferencing), taken together, constitute a far richer array of flexible instructional approaches than has existed at any time in the past. This array affords highly varied learning opportunities to both traditional students and learners previously denied access to higher education or advanced training because of geographic location or schedule” (p. 160). In other words, students and teachers are taking advantage of the new technology because of its perceived advantages rather than out of necessity.

Discussing the University of Colorado's distance education program, an article from *The Chronicle of Higher Education* (Guernsey, March 27, 1998) found that "a surprisingly large proportion of students who were already enrolled in regular classes were eager to ease their schedules by taking courses on line" (p. A29). The article also noted similar trends at Rogers University in Claremore, Oklahoma, the State University of New York, Arizona State University, and Seton Hall University. The main idea of the article was to highlight the fact that the distance education classes of today consisted of a mixed population that included both so-called traditional and nontraditional students.

Part of this trend of “traditional” students taking distance education courses may be attributed in part to the more technologically-savvy student body. In the case of the United States, usually younger students have had more computer experience than their older counterparts. Referring to online programs at community colleges, Seehusen (2000) notes that “younger students will come to us with a high level of technical skills”

(p. 36). She goes on to argue that community colleges have to accommodate this trend if they want to keep these students (lest they enroll elsewhere). Thus, perceived barriers (such as complicated technology) have not been viewed as barriers by many younger college students.

If the population of distance education students were to remain mixed, then research on retention in these courses will change. Research that focused on retention problems unique to nontraditional students may no longer be appropriate, and prescriptions or recommended solutions may be addressing only part of the problem. Future research might focus on different factors of retention other than the features of the "typical" distance education student because the standard has changed.

Statement of the Problem

This study addressed the problem of retention in distance education courses. The literature indicated that the high drop-out rate for students in distance education courses had been a continuing problem for educators (Brindley, 1989; Coldeway & Spencer, 1980; Garrison, 1987; Kember, 1995; Woodley & Parlett, 1983; Zajkowski, 1997). Retention was important in any class, not only because of financial loss to the student and institution, but also because of the personal loss to the student who did not complete. This personal loss included knowledge or skills, a degree, job advancement or self esteem (Kember, 1995; Tinto, 1987). When the focus was on distance education courses, the problem became larger in part because drop-out rates were higher for distance education courses than in-class courses, and because there was less research addressing the problem (Brindley, 1987). The fact that the original target audience of distance education courses consisted of nontraditional students, posed another problem. More recent evidence suggested that, in fact, the population of students taking these courses consisted of both traditional and nontraditional students (Guernsey, 1998). This study examined the problem of drop-out from distance education courses within the context of the "mixed" student population.

Purpose and Objectives of the Study

There were three main purposes of this study. The first purpose was to determine whether differences in retention rates existed between two different types of students, traditional and nontraditional, taking the same distance education telecourses. The second purpose was to identify any interaction effects between selected variables and the type of student. The third purpose was to attempt to identify any differences in perceptions of faculty contact between traditional and nontraditional students, and differences in perceptions of faculty contact between completers and noncompleters.

Because distance education courses in the United States were usually designed for nontraditional students, past research focused on the unique problems of this student type. Current findings that many traditional students were taking these courses created a need for research that took into account the problems associated with both student types.

Conceptual Framework

Research in the area of retention in distance education courses evolved from traditional retention research and from retention research on nontraditional (usually commuter) students. Models developed by Spady (1971), Tinto (1987), Bean and Metzner (1985), and Kember (1995) presented the decision-making processes of students, that ultimately concluded in either successful completion or withdrawal from higher education. All of these authors emphasized the element of integration, both academic and social, that led to a student-institutional "fit" and consequent student attachment to the institution. The stronger this attachment was, apparently, the more likely the student was to remain at that institution.

Conceptually, in the 1950s and 1960s, research on retention focused on identifying individual "correlates" or factors that signaled the potential student drop-out. Spady (1970) criticized these early studies as incomplete and advocated a more sociological approach to the problem that incorporated the interaction of several variables. He wrote:

> Our basic starting point is the assumption that the dropout process is best explained by the interdisciplinary approach involving an integration between the individual student and his particular college environment in which his attributes (i.e., dispositions, interests, attitudes, and skills) are exposed to influences, expectations, and demands from a variety of sources (including courses, faculty members, administrators, and peers). The interaction that results provides the student with the opportunity of assimilating successfully into both the academic and social systems of the college. To the extent that the rewards available within either system appear insufficient, however, the student may decide to withdraw (p. 77).

In other words, the concept of integration, borrowed from the discipline of sociology, became part of the foundation for Spady's model. Similarly, Tinto (1975, 1987) and Kember (1995) incorporated sociological aspects in their student retention models.

Increasing integration became a problem in the distance education classroom because of the unique circumstances of the students. Holmberg (1986) described distance education as that which "includes the various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same premises . . ." (p. 2). In his definition, Rumble (1986) noted that "the separation in space and time of teaching and learning is a basic feature of distance education" (p. 11). Holmberg, Rumble and other authors acknowledged that distance education often had some face-to-face contact while so-called "traditional" in-class courses often had elements usually associated with distance education courses. However, the generally accepted definition of distance education included some separation of the student from the teacher and/or classroom. This element presented unique obstacles to integrating distance education students whose only contact with the institution may have occurred at registration and final exam time. Specifically, the element of integration and consequent attachment to the institution, when students are not on campus, was more difficult to attain.

The difficult situation of integration existed for the stereotypical *nontraditional* distance education students. More recently institutions found that not all distance education students are nontraditional, that is, attending part-time and/or taking less than 12 standard credit hours. Distance education classes containing both traditional and nontraditional students presented a unique research opportunity. Astin, (1975), Spady (1971, 1972) and Tinto (1975) researched traditional students because at the time, most students were traditional. Boshier (1973) and Bean and Metzner (1985) researched retention of nontraditional students, a growing faction in higher education, taking into consideration the unique influences such as job and family on these students' decisions. In all cases, researchers drew a sharp line between traditional and nontraditional students. With distance education classrooms consisting of both types of students, it became possible to directly compare them with the learning environment held constant. In other words, these students were taking the same course, doing the same work, interacting with the same instructor, and working under the same deadlines. Using the conceptual frameworks of traditional and nontraditional student retention research as a guide, I attempted to find differences in the two groups of students when they were in the same distance education telecourse. First I examined retention rates, comparing the two groups of students. I then focused possible interaction effects of selected variables that might influence retention rates. In the research, faculty contact was found to have an effect on the retention of students and was embedded in the social and academic integration portions of models by Spady, Tinto and Kember. Using the literature I examined differences in perceptions of faculty contact between traditional and nontraditional students as well as differences in perceptions of faculty contact between completers and noncompleters.

Significance

Although the concept of "distance education" has a long history, it was only relatively recently that it had become a popular alternative or supplement to traditional classroom teaching in universities and colleges in the United States. More U.S. students have been using computers and the Internet to further their education and the number of students exposed to distance education has been growing. Because of this shift, there was value to both educators and students in determining what contributed to a successful learning experience for all students.

There has been significant research on effective means of increasing retention for traditional students in traditional classrooms where students and teachers are in a face-to-face environment most of the time. There has also been a significant amount of research on nontraditional students and their retention decisions when they took traditional classes.

This research on nontraditional students has been adapted for use in studies on retaining students in distance education courses, primarily because it was assumed that only nontraditional students were utilizing these programs. With the current trend of both types of students taking advantage of distance education programs, it was valuable to compare these students in the same course to determine if differences really existed. If differences were found, then there may be policy implications, such as some type of intervention which would assist in retaining students. Intervention would vary depending on the type of student. If no differences were found between the two types of students, then it may be necessary to reassess the previous models that treat these two types of students in a different manner.

The key to retention research has been to better understand the underlying premise for drop-out decisions and to ultimately improve the situation for the students, the institution and the communities in which these students live. Although grading scales have been used to indicate different levels of success among students who complete a course, there usually has been no follow-up on students who do not complete. A student may have dropped out of a class for a variety of reasons, but the financial and often personal costs to the institution and the student have been the same. Noncompletion of a course has yielded no benefit to the student, and, in the long run, the failure to acquire the skills, knowledge or degree has been a loss to the community.

Research Questions

There were three primary purposes of this study: 1) to determine a difference (if any) in retention rates between traditional and nontraditional students taking the same distance education telecourses; 2) to determine interaction effects (if any) between the variables of student type and other selected variables that might influence retention rates; 3) to determine differences (if any) in perceptions of faculty contact between traditional and nontraditional students, and completers and noncompleters. Seven research questions were generated.

1) Do traditional and nontraditional students in the same distance education telecourse successfully complete the course at the same rate? In other words, were there significant differences in completion rates between the two types of students?

If a difference in distance education course completion rates between traditional and nontraditional students existed, there were key follow-up questions to address. Why did the differences exist? Were there intervention strategies that would work to improve retention rates for both types of students? If so, what were they and how could they practically be employed in the classroom? If there were no intervention strategies that would significantly improve retention rates for both traditional and nontraditional students, then was it feasible to employ different strategies for different students?

The next four research questions were concerned with the interaction effects between student type (traditional or nontraditional) and other variables. These variables included: gender; grade point average; prior successful experience with distance education telecourses; and the number of hours the student worked and/or volunteered per week.

2) Are there any interaction effects between the variables of student type (traditional or nontraditional) and gender that affected completion rates?

3) Are there any interaction effects between the variables of student type (traditional or nontraditional) and grade point average that affected completion rates?

4) Are there any interaction effects between the variables of student type (traditional or nontraditional) and prior successful experience with distance education telecourses that affected completion rates?

5) Are there any interaction effects between the variables of student type (traditional or nontraditional) and the number of hours a student works and/or volunteers that affected completion rates?

The last two research questions were concerned with perceptions of faculty contact and how it might vary between groups.

6) Do traditional and nontraditional students who take and successfully complete the same distance education telecourses, perceive the amount and ease of making faculty contact in a different manner?

This sixth research question was concerned with differences in perceptions of faculty contact between the two types of students. Previous research had identified fundamental differences between traditional and nontraditional students and how they were socially and academically integrated into the institutional environment. Some research indicated that the significance of the role of faculty was less for nontraditional students and that other factors, such as family and job situation, played a more important role in retention decisions. Given these expectations, would the traditional students expect more participation from the faculty and thus be less accepting of the limited role faculty played in a distance education course?

7) Will completers and noncompleters differ in their perceptions of the amount of and ease of making faculty contact?

The seventh and final question addressed the differences in perceptions of faculty contact between students who successfully completed, and those who began, but who did not complete a distance education telecourse. It was expected that students who did not complete, regardless of the reason, were possibly dissatisfied with the course in general and thus perceived the limited role of faculty in these courses as inadequate.

In addition to the primary research questions, there were numerous parameters that needed to be determined before the study began. These parameters included the following:

- What is a traditional student? What is a nontraditional student?
- What is the difference between a traditional course and a distance education course?
- What is the most effective method to measure retention and drop-out rates in distance education telecourses?
- What is the most effective method to measure student perceptions of faculty contact in distance education telecourses?

These parameters were part of the focus of the study. The first two were addressed in the following subsection, definition of terms. The last two questions were addressed in the methodology section.

Definition of Terms

Distance education. In the literature, most definitions of distance education described "distance" in terms of time and/or location, specifically referring to a gap. Usually a learner and teacher were included in the definition (as distinguished from independent self-teaching), and thus, "distance education" referred to education which took place when the teacher and student were separated by either physical distance and/or time. There may be little or no time when the teacher and student were together in the classroom or lab.

Traditional Courses. Traditional courses were those undergraduate courses in which students enrolled during the prescribed enrollment period (usually a few weeks before the beginning of each semester). The traditional course may have varied in credit hours per week and ran the length of one semester (approximately 15 weeks in the fall and spring, with variations in the summer). A three credit course generally consisted of 45 in-class hours (3 hours per week for 15 weeks, for example). Students and instructors met in a standard classroom or lab and attendance by students was generally expected at every class meeting.

Distance Education Telecourse. This term was used to describe the specific courses used in this study. Distance education telecourses were courses taught using lessons televised at a particular time on a local television channel dedicated to Tallahassee Community College. The students had the option of viewing tapes of the lessons at the library or checking the tapes out. All information concerning lesson viewing times, procedures, textbooks, materials, exam times and locations, and office hours and other information needed to contact the instructor, was maintained in each course's syllabus, available to the student from the college bookstore. Usually there were textbooks and other supplemental materials required by the students, as in traditional classes. Students completed work and turned it in to the instructor's office or, in some cases, at exam times or meeting times (if any). There was little contact with the instructor and in some cases students and instructors met face-to-face only at class orientation sessions and/or exam times. The instructor was available for questions and assistance via office meetings, phone, and in some cases, e-mail.

Successful Course Completion. There were many definitions of success in an academic course. Traditionally, grades were assigned based on a numerical or intuitive value ascribed by the instructor to the students' work. In both traditional and distance education courses used in this study, this traditional method of assigning grades was used. The typical American, undergraduate course A-F scale was used with an "A" being the highest grade a student could achieve and an "F" being the lowest grade. An "A" was usually given to students who perform well above average and an "F" was usually given to students who either turned in work far below average or who did not complete the work. This study was concerned with successful completion. This included students who not only finish the course, but achieved a grade minimum of "C" or better. Students who were taking these courses to fulfill requirements for the Associates in Arts degree at Tallahassee Community College were required to receive a grade of "C" or better, or they were required to retake the course. Adhering to the standards of the college, for the purposes of this study, students who dropped or received a "D" or "F" grade were not considered as successful completers. Thus, successful completion was defined as completion with a grade of "C" or better.

Traditional and Nontraditional Students. The line between the definitions of traditional and nontraditional students has become less and less distinct in the past twenty years. For the purposes of this study, the definitions for traditional and nontraditional students were adapted from Bean and Metzner (1985). Comparing the two types of students the authors wrote, "if one defines traditional students as residing on campus, 18-24 years old, and attending college full time, it is easiest, though not completely satisfactory, to consider as nontraditional students those who lack one or more of these characteristics . . . a nontraditional student is older than 24, or does not live in a campus residence (e.g., is a commuter), or is a part-time student, or some combination of these three factors . . . " (pp. 488-489). Since this was a study of community college students and there were no on-campus housing, the definition of traditional students included only the age and full-time/part-time status criteria. Full-time was defined as taking 12 college credit hours or more.

Delimitations of the Study

Because of the numerous definitions of "distance education," it was necessary to narrow the focus of the study to one type. In this paper the focus was on a single, video/television method known as a telecourse that relied primarily on the use of a textbook and a series of videotaped classes that were televised. The classes were also archived at the library where students were able to watch them if they missed the broadcast. Contact with the instructor varied, but generally was limited to the first class meeting, announced test dates, and study sessions. The syllabus and video tapes effectively replaced the instructor (though instructor contact was possible and often encouraged) and consequently the student was forced to rely on self motivation and discipline to complete the course.

The research was limited to one school in one geographic area where the study was to be conducted. The study was conducted at a community college in Tallahassee, Florida. I chose a community college for this study for two reasons. First, the community college attracted a broader spectrum of students. In other words, students attending community colleges tended to be more diverse. This diversity was due in part to the lower tuition rates and proximity of community colleges to students, and to the "open-door" policies that allowed students with a range of abilities to enroll (Cohen and Brawer, 1989).

The second reason for choosing a community college was because of the high number of nontraditional students enrolled. Since the focus of this study was to compare traditional and nontraditional students taking the same telecourse, it was necessary to find an institution that would most likely have a good "mix" of students. In general, most community colleges attracted both traditional and nontraditional students (Cohen and

Brawer, 1989). Reviewing statistics from prior semesters, I determined that Tallahassee Community College would most likely have an acceptable (40-60) ratio of traditional and nontraditional students. For these reasons, I determined that telecourses at Tallahassee Community College would be appropriate distance education courses for this study.

There was an infinite number of variables that could be considered when comparing traditional and nontraditional students. For this study, the focus was narrowed to a few variables related to the three purposes of this study. The first purpose of the study was to determine possible differences in retention rates between traditional and nontraditional students taking the same distance education telecourse. To determine differences (if any) in completion rates, the independent variable of student type was tested with the dependent variable of completion (or noncompletion).

The second purpose of this study was to determine interaction effects (if any) between the variables of student type and other selected variables that might influence retention rates. These four other independent variables were gender, grade point average, prior successful experience with telecourses, and the number of hours the student worked and/or volunteered per week.

The third purpose of this study was to determine if there were differences in perceptions of faculty contact between traditional and nontraditional students and between students who successfully completed the telecourse and students who did not. For the first comparison, the variable of student type (traditional or nontraditional) was used as a dichotomous independent variable and the scores on the faculty perceptions survey (two sets, one for each of the constructs) were the dependent variables. Likewise, for the second comparison, the variable of completion or noncompletion was used as a dichotomous independent variable and the scores on the faculty perceptions survey were the dependent variables.

Faculty contact, as a variable, was studied specifically for two reasons. First, the research indicated that in both traditional (in-class) and nontraditional (distance education) courses, the interaction of students and faculty played an important role in influencing students' drop-out decisions (Kember, 1995; Spady, 1971; Tinto, 1987). Second, distance education courses, when compared to traditional in-class courses, did not offer the same opportunities for student-faculty interaction. Therefore, due to its influence on drop-out decisions and its minor status in distance education, the student-faculty relationship was one of the more significant variables to examine in a study concerned with retention in distance education.

Telecourses have been in use for a number of years and many two-year and four-year institutions use them. Telecourses were a popular mode of distance education because the financial cost was low for the institution (many telecourses consisted of a series of video tapes produced by private companies) and because the level of technological ability and equipment the student was required to possess was minimal (the use of a television and possibly a video cassette recorder). Although advances in technology have changed, and in some cases, enhanced distance education courses, telecourses were still an effective and inexpensive mode through which distance education takes place. In addition, because students generally had greater access to television sets than computers, telecourses were more likely to contain a wide range of students.

Despite the differences in delivery modes for distance education courses, there was a common element – the separation of the student and teacher in terms of distance and/or time. This study focused on the retention of two types of students and their perceptions of faculty contact based upon the impact of this separation. Consequently, it could have been argued that using only one mode of delivery for the study was not necessarily a limitation because by definition the separation factor existed for all distance education delivery modes.

Finally, when defining traditional and nontraditional students, I made certain restrictions. In this study, the age of the student and the number of credit hours taken by the student during the semester she or he was taking the television course were used to determine traditional/nontraditional status. It was obvious that both of these categories could have changed the next semester and thus the status could have changed, however, for the purpose of maintaining simple categories, the restrictions were necessary.

Limitations of the Study

Because of the narrow focus of this study, some factors limited the results. First, the study was limited to one program, in one school, in one geographic region. Thus the sample was made up of students who were currently residing in the northern Florida area, and who were taking the specific courses in the study. This limited application of the results to other geographic areas. Second, the sample consisted of community college students. Because these students may have differed from students attending four-year institutions, there could be some problems in applying results to students attending four-year institutions.

A third limitation of the study was the subject matter of the courses. Some students would probably attain higher grades in some courses as compared to other courses regardless of how they were taught. Many students who did not succeed or complete one course taught at a distance, might have perform well in another course taught the same way, simply because she or he was more comfortable with the material. Likewise, the teacher of the course influenced how the subject matter was taught, whether the course was taught at a distance or in the classroom. I tried to eliminate some of that bias by examining a variety of courses, but there was still the possibility that a student's success might vary from teacher to teacher.

A fourth limitation concerned the variables to be studied. The research on retention in traditional and distance education courses found that several factors existed that might influence a student's decision to drop out or to complete a course. Among the most prominent reasons were the lack of integration into the institution's culture, little interaction with the instructor, lack of contact with other students and unsuccessfully making the transition from high school or the workplace. This study focused on the variable of the student-faculty relationship with an examination of the interaction effects of four other variables. The next step might be to isolate and focus on other variables that might also influence retention.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this literature review was two-fold. First, it was important to understand the background of distance education and retention, the two key concepts of this study. The first section of the literature review discusses distance education and retention, providing the reader background and context for each term. The background explanations are drawn from the literature and provide a common basis of understanding for the reader.

The second purpose of this review was to provide the context for this study. The study of retention in distance education courses grew from retention research in the traditional classroom and from studies of nontraditional students. To better understand current research, background was provided on the development of retention models beginning with traditional students in traditional classrooms and eventually leading to the development of adapted models for distance education.

As the literature review has two purposes, it consists of two parts. The first part provides background explanations for two key educational concepts of this study with which the reader may not have been familiar: distance education and retention. Distance education has been in use throughout the world for centuries and can range from very technologically simple (correspondence) to complex (use of computers and the Internet) methods. Retention has historically been a problem for higher education administrators. Retention problems result in financial losses to educational institutions. In the past forty years, retention problems have also been viewed as social and personal problems, as the failure to obtain course credit, a degree, or a qualification may hurt the student and the community.

The second part of the literature review provides the context for the present study and contains six subsections. The first subsection examines the history of retention research in higher education, generally. The second subsection reviews studies relating retention to adult learners. The third subsection focuses on retention in distance education. The fourth subsection considers internal and external factors influencing retention decisions of distance education students. The fifth subsection examines the influence of faculty contact on student retention. The final subsection consists of the conclusion and sets up the context for the present study.

Key Concepts: Distance Education and Retention

Distance Education. Most definitions of distance education in the literature applied "distance" to time and/or location, specifically in terms of a gap. Usually a learner and teacher have been included in the definition (as distinguished from independent self-teaching), and thus, "distance education" referred to education that took place when the teacher and student were separated by either physical distance and/or time. Writing in a time period when the term (though not the concept of) "distance education" was still relatively new, Keegan (1986) contended that "it is the distance between the teaching acts and the learning acts that is crucial, not the magnitude of the geographical separation of teacher and learner" (p. 36). In other words, Keegan was attempting to expand contemporary definitions beyond the actual physical location, and include the time factor. In more recent literature, distance education was automatically categorized as *synchronous* (teaching and learning taking place at the same time) or *asyncronous*, (teaching and learning taking place at different times) (Threlkeld & Brzoska, 1994).

Another way the literature attempted to define "distance education" was a listing approach. Various authors listed examples of what was called "distance education" to help the reader understand what was meant. Keegan (1986) listed various terms that refer to the same or similar educational delivery mechanisms, such as correspondence education, independent study, home study, and external studies. Keegan's list was intended to give the reader a comparative context, and he defined each of his terms in detail. Brown and Brown (1994) took a historical approach and listed the various iterations of distance education over time. The authors began with the oldest and most basic form of communication, oral repetition, and explained how improved technologies (beginning with print media) changed distance education over time. They used the historical context as a means of understanding much the same way Keegan used the comparative context.

Retention. Retention, and the related term *attrition,* were discussed in the literature with reference to students who remained in or dropped out of higher education respectively. Retention,33 strictly defined, was the act of retaining, or keeping. In higher education that "retaining" or "keeping" referred to students. The related antonym, attrition, was a reduction in numbers (Mish, 1984, 115). In higher education, those "numbers" were numbers of students and the term was interchangeable with the more common phrase, "drop-out rate." The term "drop-out" itself was complex because it was difficult to determine when a student has actually "dropped out" of college, or when the student has simply temporarily interrupted her/his studies. This temporary interruption was sometimes called "stop-out" in the literature (Astin, 1975), but because of the varying lengths of time a stop-out may endure, it was very difficult to distinguish between drop-out and stop-out. Astin made this point succinctly: "No categorization will be wholly satisfactory until all students either obtain their degrees or die without receiving them" (Astin, 1975, p. 6). Some authors used the term "drop-out" to refer to attrition or specifically to a student who does not complete a course (program, degree, etc.) (Garrison, 1987; Woodley and Parlett, 1983). Other authors believed that the term "drop-out" had a negative value which assumed that students who did not finish a course or degree program were withdrawn involuntarily, most probably due to academic reasons. These authors believed that the term unfairly ignored students who chose to leave school for other purposes such as transfer or because she or he had no intention of completing in the first place (Coldeway & Spencer, 1980; Tinto, 1987).

Specifically addressing nontraditional distance education students, Kember (1995) listed several possible categories of students based on what may result after a student enrolls in a course. His categories included: those who commenced with prior credit; non-starters (students who enrolled but never actually attended class or did work); informal withdrawals who stopped working on the course; formal withdrawals who completed an official withdrawal procedure; academic failure; those who passed but did not enroll for a subsequent course; those who passed and enrolled for a subsequent course; and those who transferred to other programs (Kember, 1995, p. 27). For Kember, the term "retention" was primarily used with the understanding that when retention efforts were unsuccessful there was necessarily an increase in attrition, or the drop-out rate.

The definition of retention in higher education became more complex when defined situationally. With respect to situation, the literature defined four types of retention: system (retention in higher education regardless of school); institutional (retention in a particular college or university); program (retention in a specific major or program of study); and course (retention in a particular course or class).

Complications arose when defining retention/attrition in distance education courses. In particular, the literature indicated that because there may have been no official face-to-face meeting of students and teacher, it was difficult to determine when a student had officially enrolled and, consequently, when that student had dropped out. Some institutions considered the number of students initially registered as the baseline for enrollment, and completers were those students from that baseline number who actually finished the course. Other institutions did not officially consider a student "enrolled" until she/he actually did work in the course. In addition, many institutions had "open" enrollment for distance education courses, meaning that students could start at any time during the school year. These procedural differences in institutional policy led to inconsistencies in measuring retention rates (Kember, 1981; Roberts, 1984) .

Context for the Current Study

This section provides the background for the present study. There are six subsections: historical context; retention of adult students; distance education; factors affecting student drop-out; faculty contact; and conclusion and context for this study.

Early studies on retention in higher education were written within a cause-effect context which often focused on the "roots" of the problem (description) and then prescribed specific steps for solutions. This research focused on isolating specific causes for attrition and set the foundation for further studies. Alexander Astin's (1975) *Preventing Students From Dropping Out* was an example of this type of study.

Much of the recent research on retention models traces its roots back to two authors in fields other than higher education. Sociologist Emile Durkheim wrote *Le Suicide* in 1897 (translated as *Suicide* in 1951 by Spaulding and Simpson). Recent authors in the field of retention in higher education, such as Tinto and Spady, used Durkheim's work to provide socialization and integration background for their theories. Another influential work, Arnold van Gennep's *Les Rites de Passage* (translated as *Rites of Passage* in 1960 by Vizedom and Caffee) was used by Tinto in part to explain transition processes as people move from one social group to another. Because both Durkheim and van Gennep's works were so influential (not just for the authors mentioned, but others who have built on their research), there is a brief overview of both included in this review.

The first subsection continues with the development of retention models and theories based on Durkheim and van Gennep's work. The authors most prominent in this area were Spady and Tinto. Building on Spady and Tinto's work, Pascarella and Terenzini focused on the interaction effects of several factors of retention.

The second subsection examines retention issues specific to adult learners (as opposed to traditional, full-time students, usually between the ages of 18 and 24). Two retention models developed specifically for adult students are examined. Boshier developed a model based on the "*interaction* of internal psychological and external environmental variables" (Boshier, 1973, 256). Bean and Metzner, writing in 1985, presented a model which was concerned with the population shift of higher education students emerging at that time from traditional to nontraditional.

The third subsection moves into the area of distance education and new models are examined to explain retention in this area. Bernard and Amundsen (1989) applied Tinto's model of retention influences to distance education courses with particular attention to course content and goals, and how these differed from course to course. Likewise, Sweet (1986) used Tinto's model in his research on interaction effects in distance education courses, particularly faculty-student contact. Finally, Kember (1995) developed, tested and revised a new, two-track model of retention for distance education students.

The fourth subsection of this literature review examines specific factors related to retention decisions for distance education students. These factors could have been classified as internal or external. Internal factors were those factors associated with what the student brought to the class and included learning style and personality traits. Although background variables could have been considered under this category, their effect was primarily indirect and in the literature was usually considered only in conjunction with other variables. External variables included all other influences which the student does not control or was not "born" with. These included institutional factors (things the university controls) and environmental factors (e.g. family life and employment).

The fifth subsection of the review is concerned with the effects of faculty contact on retention rates of students in higher education. The subsection begins with an early study of faculty contact and other components and their influence on retention of traditional students. The second study is a comprehensive review of various influences on retention rates of traditional students, including faculty contact. The last study in this subsection researches the specific effects of faculty telephone contact on the retention of distance education students.

The last subsection of the review contains a conclusion and sets the stage for the present study. The importance of faculty or tutorial contact to distance education students is examined within the current context of distance education classes containing "mixed" students. In other words, today's distance education classrooms might contain both so-called "traditional" and "non-traditional" students. In this study, I search for differences between the two types of students related to retention rates and perceptions of amount and ease of making of faculty contact.

Historical Context

The study of attrition and retention was not new, making it difficult to settle on a starting point for historical context. Spady (1970) provided a "review of literature reviews" which consisted of six reviews from the 1960s. Tinto (1987) cited sources which date back to the 1950s. Except for occasional historical reference, this study primarily focuses on the more recent literature of the past 25 to 30 years. There are two reasons for this limitation. First, the composition of today's student body has changed dramatically in the past several decades, altering or invalidating many of the presumed influences of attrition in the older research. Second, work done by Spady, Tinto and Kember, has incorporated and built upon previous research in such a way that the value of this older research was carried on in the more recent studies.

One of the most prominent themes which emerged in the retention literature beginning in the 1970s is the idea that there was no single factor that determines whether a student remains in college or drops out. Not only are there several factors at work which may influence an individual student's decision, but it became clear that it is the *interaction* of these several factors which may ultimately determine a student's drop-out decision (Spady, 1971; Tinto, 1987). There are some factors which could be described as *student factors* such as academic preparation, personality, intelligence and motivation. Other factors are external, such as institutional environment and faculty assistance. The integration of the student into the institutional environment depends on what can be called a "match" between these student and external factors. Astin referred to this as "student-institutional 'fit'" (1975, p. 46). Spady wrote, "the dropout process is best explained by an interdisciplinary approach involving an interaction between the individual student and his particular college environment in which his attributes . . . are exposed to influences, expectations, and demands from a variety of sources" (1970, p. 77). Underscoring the interaction effect, Tinto wrote:

> Though prior dispositions and attributes may influence the college career and may, in some cases, lead directly to departure, their impact is contingent on the quality of individual interactions with other members of the institution following entry and on the individual's perception of the degree to which those experiences meet his/her needs and interests (1987, p. 47).

Building on Tinto's work, Pascarella and Terenzini discussed "institutional and goal commitment" as part of the integration process (1980, p. 62). Like Spady, the authors focused on both academic and social integration. As a whole, this early work set the stage for an integration/interaction theory which incorporates both student and external factors in retention models and research.

Attrition as a Problem

In 1975, Alexander Astin addressed the problem of student retention in *Preventing Students from Dropping Out*. Writing within the context of declining enrollments in the late 1960s and early 1970s, Astin viewed student drop-out as a problem, both financial and social, for students and institutions. However, he qualified his assessment by noting that there are students who voluntarily drop out and others who have no intention of ever attaining a degree. In order to clarify, Astin provided concise definitions of persisters, drop-outs and stop-outs, based not only on degree attainment at the end of four years, but also on the stated intentions of students at the beginning of the four years. His stated purpose for his study was to use the information he gathered for prediction purposes.

As part of a longitudinal process, Astin collected an enormous amount of data from 1968 to 1972. His initial sample included 243,156 freshmen from over 350 two-year and four-year institutions who were beginning their higher education in 1968. In 1972, a follow-up survey was administered to 101,000 students with 41,356 returned with enough information for the study (Astin, 1975, pp. 3-4). In the initial survey, Astin asked students a variety of questions including demographic information, academic intentions, career plans, goals, study habits, institutional choices and questions pertaining to the student's parents such as occupation, income and educational level (p. 4). After four years students were asked about "educational progress since entering college: number of years of undergraduate attendance, degrees earned, current degree plans, and a year-by-year record of enrollment status" (p. 5). The survey also covered financial and employment information about the student.

In his analysis, Astin sorted the student group by race and sex and further analyzed various factors that seemed to have some influence on whether a student dropped out, stopped out, or persisted. His intention was to create a prediction formula based upon the most significant factors influencing retention. He discussed six types of significant influences including "academic background and ability, family background, educational aspirations, study habits, expectations about the college and other student characteristics" (Astin, 1975, p. 29). Astin found that:

> The most "drop out-prone" freshmen are those with poor academic records in high school, low aspirations, poor study habits, relatively uneducated parents, and small town backgrounds. Dropping out is also associated with being older than most freshmen, having Protestant parents, having no current religious preference, and being a cigarette smoker. Among freshman women, those who are either married or have marriage plans are also more likely to drop out, although among male freshmen being married at the time of college entrance is related to persistence (Astin, 1975, p. 45).

Having covered the various factors students bring with them to college, Astin next examined a variety of outside influences. These included the impact of financial aid (different types, amount, and number of sources), employment (type of employment, number of hours, whether employment was integrated with academics), residence and campus environment (on campus or off), college characteristics (size, type, cost, geographic region, etc.), and student-institution "fit." Since he clearly stated that he wrote his book for decision makers including higher education administrators, Astin concluded with suggestions for change and further research pertaining to retention. He also included a "worksheet" which could be used to collect preliminary data on students and predict the likelihood of that student persisting or dropping out.

Astin's work was significant in that it created a strong base on which to begin research. He made use of a large amount of data that came from a variety of student types and institutions. As would be expected, today his work is somewhat dated. Women and minorities would now make up a larger percentage of the student body. Attrition and retention choices, viewed in today's context, would probably change significantly, especially family choices made by women. However, Astin's work influenced later research such as that done by Bean and Metzner, Kember, and Towles, Ellis, and Spencer (1993) among others.

Retention Models Background

The evolution of the more prominent retention models in higher education can be traced back to work done by both Spady and Tinto. Writing in the early 1970s, both authors recognized the lack of coherent research in the area of student retention. Spady and Tinto both criticized prior research as merely descriptive. Tinto (1975) wrote:

> "Research on dropout from higher education has . . . been marked by inadequate conceptualization of the dropout process. This is particularly noticeable in the lack of attention given to the development of those types of longitudinal models that would lead to an understanding of the processes of interaction, which bring, over time, differing individuals within the institution to varying levels of persistence and/or to varying forms of dropout behavior. . . . [M]ost studies of dropout have been

> limited to descriptive statements of how various individual and/or institutional characteristics relate to dropout (p. 90).

Spady and Tinto both turned to sociology for a theoretical model which could accommodate social integration and the interaction of several factors, concepts both authors believed help to explain student retention decisions. Separately, Spady and Tinto borrowed from the work by sociologist Emile Durkheim and his theories on suicide. Durkheim hypothesized that people who were not fully integrated into society were more likely to kill themselves. Interpreted another way, these people literally "dropped out" of life. Both Spady and Tinto appropriated this part of Durkheim's theory and applied it to the student who does not become socially integrated into college life and consequently "drops out" of school. Tinto also borrowed from anthropologist Arnold van Gennep and his research on the transition process of moving from one social group to another. He drew a parallel to students who do not make the transition from high school peer groups and family to the new social groups of college friends and faculty.

In order to provide the reader with a better understanding of the sociological and anthropological roots of retention research, the following section includes a brief overview of the original works of Durkheim and van Gennep.

Durkheim - *Suicide*

Writing before the advance of psychoanalysis, Emile Durkheim believed that attempts at discovering individual reasons for suicide were fruitless. Instead, he examined social forces. Explaining the reasoning behind his approach, he wrote:

> Certainly many of the individual conditions [related to the origin of suicide] are not general enough to affect the relation between the total number of voluntary deaths and the population. They may perhaps cause this or that separate individual to kill himself, but not give society as a whole a greater or lesser tendency to suicide . . . The [sociologist] studies the causes capable of affecting not separate individuals but the group. Therefore among the factors of suicide the only ones which concern him are those whose action was felt by society as a whole. The suicide-rate was the product of these factors. This was why we must limit our attention to them (Durkheim, 1951, 51-52).

In order to support his conclusion that suicide is a result of social forces, Durkheim proposed several other, seemingly plausible, non-social factors which may have influenced the suicide rate. He then presented evidence (from what data he had available at the time) that systematically eliminated these factors as significant influences. Having apparently ruled out "extra-social" causes, Durkheim then examined social causes of, and influences on, suicide. It was this section of Durkheim's work which most influenced Tinto, Spady, and other retention writers.

Based on various social influences, Durkheim developed his theory on suicide. He classified suicides into three major types: egoistical; altruistic; and anomic. Egoistical suicide occurred when an individual's free will led to a disintegration of ties to society. In his explanation of egoistical suicide, Durkheim focused on social integration and its influence on the suicide rate. Because of the significance of social integration and its effect on an individual's choice to "drop out" of life, it was Durkheim's egoistical suicide which was the keystone of later retention research. Egoistical suicide and its influences have been discussed in greater detail below.

Altruistic suicide referred to voluntary death for a cause or as part of conforming to authoritative rules. In contrast to egoistical suicide, which occurs when an individual has too much free will and self-determination, altruistic suicide is dictated to the individual by a higher power. In lower societies, according to Durkheim, altruistic suicide occurred as part of ritualistic sacrifice. In more advanced societies, the most obvious examples of this form of suicide are found in the military. Anomic suicide takes place when certain regulatory forces in life are disrupted or suspended. According to Durkheim, individuals become accustomed to daily economic and social routines and when a sudden change occurs, for better or worse, the tendency for suicidal behavior increased. He wrote:

> Man's characteristic privilege is that the bond he accepts is not physical but moral; that is, social. He is governed not by a material environment brutally imposed on him, but by a conscience superior to his own, the superiority of which he feels . . . . But when society is disturbed by some painful crisis or by beneficent but abrupt transitions, it is momentarily incapable of exercising this influence; thence come the sudden rises in the curve of suicides . . . " (Durkheim, 1951, p. 252)

There was brief mention of a fourth type, fatalistic suicide, which Durkheim offered as a counterpart to anomic suicide. He did not attach a great amount of significance to fatalistic suicide (suicide occurring when, due to "excessive regulation" and oppression, a person had no control over an otherwise bleak future), however, Tinto did include this type in his synthesis of Durkheim's research.

In his discussion of egoistical suicide, Durkheim studied an individual's relationship with her/his society. He began by comparing religious affiliation and suicide rates and hypothesized as to why they differ. Specifically, he contended that religions which attribute more free will to an individual (such as Protestant religions) had a higher suicide rate than religions which limited free will (such as Catholicism). In addition, Durkheim pointed out that because of the concept of free will and the fact that a follower of Protestant faith had influence over religious interpretation, Protestant religions were *less integrated* than other religions and consequently the religion had less influence over day-to-day activities and followers lacked a strong sense of unity. This lack of integration (coupled with better education) caused suicide rates to be higher among followers of Protestant religions. Durkheim (1951) wrote:

> The details of dogmas and rites are secondary. The essential thing is that they be capable of supporting a sufficiently intense collective life. And because the Protestant church has less consistency than the others it has [a] less moderating effect upon suicide (p. 170).

Continuing with his explanation of egoistical suicide, Durkheim examined the effects of another social realm, marriage and family, on the suicide rates of both women and men. He found that being part of a family (i.e. parents and children) does appear to lower the tendency of suicide, and again connected this with the concept of being integrated into a social group. Likewise, when certain national political crises occur, citizens are united in a common cause and thus more strongly integrated into a social group; in this case, as citizens of a nation. When these unifying crises occur, the integration, according to Durkheim, inversely influences the suicide rate.

The recurring theme in Durkheim's work was that of integration in social groups. In absence of integration, the individual literally "drops out" or commits suicide. It was this concept of unintegrated individuals dropping out which both Spady and Tinto used to form their retention models.

van Gennep - *Rites of Passage*

In 1908 Arnold van Gennep produced his anthropological work, *The Rites of Passage*. The "rites of passage" were the transitions from one group to another and were characterized by three stages: separation from the former group as seen in decreased relations with members of that group; interaction with members of the new group as a prelude to membership; and finally, acceptance and incorporation into the new group. Van Gennep's study of transition included travel (border crossings, entering new territories), pregnancy and childbirth, varying stages of physical maturity, marriage, death, and initiation (into adulthood, secret societies, etc.) (van Gennep, 1908).

According to van Gennep, an individual's life is marked by change and transition, and each change includes certain ceremonies and initiation processes. He wrote:

> The life of an individual in any society is a series of passages from one age to another and from one occupation to another . . . . Transitions from group to group and from one social situation to the next are looked on as implicit in the very fact of existence, so that a man's life comes to be made up of a succession of stages with similar ends and beginnings . . . For every one of

> these events there are ceremonies whose essential purpose is to enable the individual to pass from one defined position to another which is equally well defined (van Gennep, 1908, p. 3).

In other words, people create these ceremonies and rituals to ease an individual from one stage to another. This process of transition and its accompanying rituals were later incorporated into Tinto's model of retention.

Spady's Model

Spady (1970, 1971) was the first to used Emile Durkheim's concept of social integration in a model of student retention. He wrote two articles, the first which reviewed the literature and proposed a model, and the second which tested his model and was described as a "sequel" to the first.

In his first article, Spady did an extensive review of the retention research available at that time. He examined several student factors which influence retention including family status (socioeconomic and educational level of father), academic aptitude and preparation, demographics, maturity, motivation and intention (if a degree was desired and if so, which degree). Using these elements as pieces of an overall integration process, he then discussed the concept of integration based upon Durkheim's theory of suicide. He wrote:

> Although dropping out is clearly a less drastic form of rejecting social life than is suicide, we assume that the social conditions that affect the former parallel those that produce the latter: a lack of consistent, intimate interaction with others, holding values and orientations that are dissimilar

> from those of the general social collectivity, and lacking a sense of compatibility with the immediate social system (1970, p. 78).

Spady contended that there were two essential types of integration for students that prevent dropping out. The first was *academic integration* and consisted of extrinsic rewards (good grades) and intrinsic rewards (intellectual development). The second was *social integration* and also consisted of two elements. The first element was what Spady called *normative congruence*, which represented compatibility between students and their institutional environments. The second element was *friendship support*, or strong relationships with peers (1970, p. 77). Both of these elements were initially influenced by family background.

Spady's 1971 article described research done by the author to test the various elements of his model. Tapping into the student body of University of Chicago (which, as the author points out, limits the generalizability of the findings due to the university's high selectivity), Spady collected a variety of data from 683 freshmen in 1965. As Astin was to do a couple of years later, Spady followed up on these students after four years to determine whether they had attained a degree, were still enrolled, had applied for a leave of absence, or had dropped out. The amount of information collected on each student was extensive. Data collection included preliminary academic information (high school transcript, college interview, application), background information (family information, motivations, expectations, social and cultural life elements), personal information (perceptions of environment, friendships, values, interests, attitudes, parental relationships, social integration information), and academic status (grade point averages, graduation status) (1971, p. 42). With sex as a moderator variable, all of this information was used in stepwise regression analysis to explain the influence on drop-out decisions of the various model components: family background; academic potential; normative congruence; grade performance; intellectual development; friendship support; social integration; satisfaction; and institutional commitment.

Spady (1971) found that particular factors influence the drop-out decisions of students. Those factors differ for men and women, but ultimately, initial college academic performance strongly influences both sexes. Spady noted that for both sexes, "those who remain at Chicago and receive a degree differ from early dropouts more on the basis of their initial performance in the College than on any other set of factors . . . . [L]ong term survival . . . depends increasingly on the student's ability to meet the challenge of the formal academic system" (1971, p. 61).

Tinto's Model

In his book, *Leaving College* (1987), Vincent Tinto developed a model of what he calls "individual departure" that accounts for students leaving college before completion of a degree. Tinto criticized previous psychological theories which narrowly focused only on student personality, consequently ignoring external forces. Tinto was equally dissatisfied with societal theories explaining departure because of their tendency to stress only large scale external forces, ignoring the more unique forces of an individual institution. Instead, he suggested, the external forces that influenced student departure should be viewed in terms of situational context, dependent upon the uniqueness of the institution.

Drawing from the schools of anthropology and sociology, Tinto proposed his own theory of individual departure. He began with a focus on the concept of membership in society as a whole and movement of membership from one social group to another. He based this portion of his work on the studies done by anthropologist Arnold van Gennep and his book, *Rites of Passage*.

Tinto focused on van Gennep's study of rituals and incorporation, particularly with respect to incorporating a stranger into a new group. He applied van Gennep's group transition stages to a student's process of leaving her/his home, family, and high school community and making the transition and eventual incorporation into a new college community. If the separation, transition and incorporation were successful, then a student became a member of the new college community. This contributed to retention because unsuccessful incorporation led to isolation from the new community and without the support that came from membership in a community a student may have been more likely to drop out (Tinto, 1987). This paralleled Spady's concept of normative congruence, which referred to the student's personal relationship (or fit) with the institution (Spady, 1970, 1971).

Similar to Spady, the second part of Tinto's theory was grounded in the sociological research on suicide done by Emile Durkheim. Durkheim classified the social influences on suicide into four types, and Tinto concentrated on the last of these types, egotistical[1] suicide, as the most appropriate for a theory of student departure. Egotistical suicide occurred "when individuals [were] unable to become integrated and establish membership within the communities of society" (Tinto, 1987, p. 101). This integration took two forms. Social integration "results from personal affiliations and from the day-to-day interactions among different members of society" (p. 101). Intellectual integration refers to a shared value system among members of a society or community. Again, a similarity could be drawn to Spady's model, which included intellectual development and friendship support as part of social integration.

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[1] In *Leaving College* the term "egoistical" has been changed to "egotistical" though in other works by Tinto the original term was maintained.

Relating the suicide research to student departure, Tinto suggested that, similar to egotistical suicide, students who departed may not successfully integrate into the college community. He wrote:

> . . . social conditions affecting dropout from the social system of the college would resemble those resulting in suicide in the wider society; namely, insufficient interactions with others in the college and insufficient congruency with the prevailing value patterns of the college collectivity. Presumably, lack of integration into the social system of the college will lead to low commitment to that social system and will increase the probability that individuals will decide to leave college and pursue alternative activities (Tinto, 1975, 91-92).

Tinto also attributed a lack of integration to both institutional and individual factors. Students did not leave college based solely on their participation in the college community, but also because of individual intentions and varying levels of goal commitment. In the case of intentions, Tinto pointed out that many students begin higher education at a particular institution with no intention of finishing at that same institution. This may be because the student intends to transfer, already has a degree or does not want one and was taking courses to hone job skills, or myriad other individual, personal reasons. Commitment refers to the student's personal goals (is college completion essential to the ultimate goal of degree, career, etc.)

Although Tinto used key components of both Durkheim and van Gennep's work, he realized that there was a key difference between the communities those authors studied and the typical college community. The primary difference was the time factor. Durkheim and van Gennep studied transition and integration in permanent communities, however, a student lives in the college community as a student only temporarily (Tinto, 1987, p. 105).

Developing his theory on institutional departure, Tinto classified the college community as academic and social systems. Within each of these systems were both formal (structural) and informal (normative) experiences. In the academic system, formal experiences, for the most part, occur in the classroom setting. Informal academic experiences may occur outside the classroom setting, such as during study sessions. In the social system, Tinto defined formal experiences as extracurricular activities (such as sports) and informal as those "arising out of the day-to-day activities among differing members of the institution over matters not formally addressed in the rules and regulations of the institution" (Tinto, 1987, p. 107). This may include informal contact with faculty. The four components vary in importance among institutions, thus creating a unique environment into which the student may or may not integrate. The one consistency appeared to be the formal academic requirement of grades. Regardless of what happens informally or outside the academic realm, there is usually a minimum grade standard which the student must have met or she/he involuntarily departed.

Another influence on student departure according to Tinto (1987) is the impact of external forces. Because of the temporary nature of the college experience, external events sometimes have a more forceful impact on an individual's decision to stay in college or to depart, especially if the student is not strongly integrated academically and socially. Finally, there is the individual's influence on retention decisions. Durkheim did not attempt to explore individual reasons for suicide, but rather focused on the social influences, in part because in-depth study of underlying human motive and thought in the form of psychoanalysis had not been developed yet. Tinto incorporated individual intentions (aspirations, expectations, goals) and commitment (motivation) into his model (p. 110). According to him, a person who sets a clear goal (to attain a degree) and who is highly committed to that goal, is more likely to finish college.

Tinto's model of student departure was longitudinal and focused on voluntary departure rather than involuntary (i.e. academic dismissal). He wrote, " . . . the model seeks to explain how interactions among different individuals within the academic and social systems of the institution lead individuals of different characteristics to withdraw from that institution prior to degree completion" (p. 113).

Terenzini and Pascarella

Using Tinto's model, Patrick Terenzini and Ernest Pascarella attempted to test the validity and interaction effects of the individual components, particularly the social and academic integration elements. Writing in the late 1970s within the context of dropping enrollments (and thus loss of revenue for institutions), the authors were more concerned with voluntary withdrawal rather than involuntary academic dismissal.

Terenzini and Pascarella conducted two studies (one in 1975, one in 1976) using large samples of freshmen attending Syracuse University. Because both Tinto and Spady had found differing degrees of influence of various factors between sexes, the authors used sex as a modifier. To test academic and social integration and the impact of these factors on student persistence, they collected data representing both the formal (structural) and informal (normative) types of integration as identified by Tinto. Structural academic data were in the form of grade point average; normative academic data were in the form of students' perceptions of their academic program via an adjective rating scale. Social integration was measured in three ways: the number of extracurricular activities in which the student participates (structural); perceptions of nonacademic life via an adjective rating scale; and number of informal interactions with faculty (Terenzini and Pascarella, 1977, p. 28). In the 1975 study, the authors were testing the absolute and relative importance of academic and social integration to the drop-out/retention decision. They wrote:

> Specifically, this investigation sought to determine (1) the degree to which a freshman student's integration in the social and academic systems of an institution was functionally related to attrition or retention, and (2) the

> relative explanatory potency of these two dimensions of the theoretical framework (1977, p.27)

The results of Terenzini and Pascarella's study appear to support Tinto's and Spady's concepts that the more academically and socially integrated a student is, the more likely that student will stay in college. Normative or informal integration seems to have the biggest impact on retention. Specifically, "stayers had significantly more positive perceptions than leavers of both their academic programs and their nonacademic lives" (1977, p. 39). In addition, "stayers reported significantly more contacts with faculty members and also reported finding their nonacademic lives to be significantly more demanding and challenging than did leavers" (p. 39). In contrast, the authors did not find that structural (formal) integration either academically (grade point average) or socially (participation in extracurricular activities) had a significant impact in distinguishing between stayers and leavers.

In their 1976 study, Pascarella and Terenzini expanded their work by including the background variables element of Tinto's model. They explored the idea that certain background variables may interact with and/or complement academic and social integration variables and that this integration effect impacted drop-out/retention decisions. In other words, a student who did not fully integrate socially and academically to the level usually associated with retention, may not drop out due to certain background factors. Likewise, a student who did not have the background typically associated with "stayers" may have become socially and academically integrated to a point that she/he did not drop out as expected. The authors attempted to identify three different relationships:

the relationship between entering characteristics and both academic and social integration; the relationship between academic integration and social integration; and the relationship between entering characteristics and the student-faculty relationship. This last relationship was singled out because of the significance informal faculty contact had on stayers, as indicated by the 1975 study.

Despite self-imposed caveats that their research was limited due to single-year/single institution sample and the weakness of instruments measuring interaction effects, Pascarella and Terenzini discussed several significant findings based upon statistical analysis of the large amount of data collected. These findings included the "sociological complexity of the influences on student persistence/withdrawal decision" and that "what happens during the freshman year may be more important than the particular commitments, background characteristics, aspirations or aptitudes which the student brings to college" (1979, p. 208). In other words, background variables did have an impact on student retention at the freshman level. However, these variables could have been complemented and compensated for by the actual integration experiences that occurred once the student arrived on campus. Conversely, "the extent of influence of various measures of social and academic integration was not independent of the particular background characteristics which students bring to college or of other social and academic experiences during the freshman year" (1979, p. 209). Because of this, institutional policies designed to increase academic and social integration may not affect all students equally or in the same manner.

In both studies, Pascarella and Terenzini found that student faculty contact was positively related to student retention for both males and females. In their 1975 study they noted that "stayers ranked faculty members significantly higher than did leavers" and that "informal contact with faculty may be as important to the normative academic integration of students as to their social integration" (1977, p. 40). In their 1976 study the authors found that as an interaction effect, faculty contact acted in a "compensatory manner in terms of their influence on freshman persistence" (1979, p. 209).

Conclusion: Historical Context

The authors reviewed in this section (excluding van Gennep and Durkheim) provide a solid base in retention research. There are several themes or common threads throughout this research. These themes can be classified as concepts, contextual factors, and key ideas.

First, these authors emphasized the importance of redefining (and renaming) the concept of "drop-out." When attempting to find solutions to declining enrollments at the institutional level, retention and attrition are often interpreted by administrators as inflexible terms. In particular, "drop-out" is viewed negatively and indicated failure. These authors were among the first to emphasize the distinction between *involuntary* and *voluntary* departure, with the former usually indicating academic or disciplinary dismissal and the latter a voluntary decision the student made based on several circumstances. Tinto (1986) wrote:

> . . . the label *dropout* is one of the more frequently misused terms in our lexicon of educational descriptors. It is used to describe the actions of all leavers regardless of the reasons or conditions which mark their leaving. But leavers often do not think of themselves as failures. Many see their actions as quite positive steps toward goal fulfillment (p. 3).

Thus, these authors redefined the key concept of departure, noting that there were many reasons why students left, not all of them negative. To reinforce this new concept, the authors chose replacement terms such as "departure" for attrition (Tinto, 1987), "voluntary leavers" for drop-outs (Terenzini and Pascarella, 1977) and "stop-out" for temporary disruption of studies (Astin, 1977).

Three key contextual factors were similar in the work of Astin, Spady, Tinto and Terenzini and Pascarella. First, there is the time frame. All of these studies used samples of students attending higher education institutions in the late 1960s or 1970s. Since this time period, social changes may have influenced some of their findings. For example, not only are women no longer a minority in higher education, the social roles of women have changed dramatically. Consequently, the apparent reasons for female drop-out in the 1970s may or may not have been similar to the apparent reasons for female drop-out in the 1990s. This poses the question of whether the differences between women and men in these studies were a result of gender-based personality traits or social influence.

A second contextual factor was the type of drop-out examined in these studies. Drop-out has occurred on several levels: system-wide (stopping higher education all together); institutional (which may have included transfer to another institution); program (which may involve switching majors); and course (not completing a particular class). For the most part, these studies focused on institutional drop-out (though Astin's study did involve several institutions). The reasons students left an institution may or may not have resembled the reasons students did not complete particular courses.

The third contextual factor was the makeup of the samples. These authors all studied traditional undergraduates. This was logical since the studies came about in part as an attempt to solve a problem: student attrition at the undergraduate level. As the composition of the student body has changed over the past twenty years, later studies have placed more emphasis on nontraditional students, including returning, older students.

As work on retention by these authors progressed, often building on one another, three key ideas emerged. The first, as already mentioned, were the differences between women and men. It appeared from this research that different variables affected men and women differently in their departure decisions. Whether this was a product of gender differences or social differences was unclear. However, it did indicate that it may be worthwhile for future studies to consider gender as a moderator variable.

The second key idea was that several factors interact to influence departure decisions. In other words, there is no single cause of drop-out, but rather several components including background variables and both academic and social integration processes that interact and influence an individual's decision to remain in school or to leave.

The third key idea which developed throughout the research by Spady, Tinto and Terenzini and Pascarella, was the apparent positive influence of student-faculty contact on student retention. Spady associated faculty contact with intellectual development (1977, p. 48) while Tinto contended "The absence of interactions between faculty and students may also serve as a predictor of both individual departure and institutional rates of departure" (1987, p. 66).

Retention of Adult Students

As noted in the previous section, much of the original retention research concentrated on traditional students, approximately between the ages of 18 and 24, who attended institutions full time with the intention of attaining a four-year or two-year degrees. This section will review studies which recognize the unique problems associated with retaining adult, or non-traditional students.

Boshier

Boshier's (1973) research on adult student drop-out paralleled the work of Spady. Both authors wrote in the early 1970s as a response to what they perceived as a lack of coherent research on the problem of student drop-out. In addition, both authors agreed that there were several interacting variables which affected the drop-out decision of individuals (as opposed to theories contending a single variable "cause").

The key difference between Spady and Boshier was that the latter wrote from the adult education perspective. His focus was on students who were taking noncredit adult education courses. This presented key differences between the students in the previous studies discussed and Boshier's study. First, there may have been demographic differences such as age and family commitments. Second, since the students in Boshier's study were taking noncredit courses, motivations and goals may have varied greatly from those of the degree-seeking students in Spady's and Tinto's works.

Boshier developed a model based on the concept of internal and external factors. He wrote "drop-out was in some ways an extension of non-participation; variables associated with one were associated with the other. Researchers must recognise that both participation and drop-out stem from an *interaction* of internal psychological and external environmental variables" (1973, p. 256). He used the term "congruence" to indicate both a student's sound psychological frame of mind and a comfortable fit between the student and her/his environment. Boshier stated that "'congruence' both within the participant (intra-self) and between the participant and his educational environment (self/other) determine participation/non-participation and dropout/persistence" (p. 256). Spady also used the term "congruence," specifically "normative congruence" to indicate a successful integration of a student into the external environment. However, while Spady referred to the "fit" between a student and the institutional environment, Boshier's use of the term was more specific to psychological and environmental factors.

Boshier (1973) found that adult students who take noncredit, nonvocational classes could be classified into two groups based upon motivations. "Growth-motivated" students are influenced by internal factors and are "inner-directed, autonomous, open to new experience, willing to be spontaneous, creative, and free from deterministic attitudes" (p. 256). In general, they take classes because they want to learn, and even external factors such as poor teaching would not discourage them. On the other hand, "deficiency-motivated" individuals are more heavily influenced by environmental factors and these students take courses more out of necessity (for example, because of job or social expectations) than for personal growth. Boshier (1973) suggested that deficiency-motivated students participate in higher education in part to satisfy lower basic needs that the growth-motivated students have already met (p. 258). Students who are growth-motivated exhibit intra-self congruence while deficiency-motivated students exhibit intra-self incongruence. Boshier explained the process as a progressive one: when students are growth-motivated they experience intra-self congruence; in turn they experienced self/other congruence, and they were more likely to stay in school.

While intra-self congruence stems from internal, psychological factors, self/other congruence is the relationship between an individual and the environment. This concept is very similar to the integration concepts of Spady, Tinto and Terenzini and Pascarella. These authors proposed that students who are integrated into the institutional environment, both socially and academically, are less likely to drop out. Similarly, Boshier (1973) stated "Bearing in mind the pervasive nature of self-rejection and the development of incongruence, it is now suggested that both adult education participation and dropout can be understood to occur as a function of the magnitude of the discrepancy between the participant's self concept and key aspects (largely people) of the educational environment" (p. 260). Boshier pointed out that certain "mediating variables" such as age, transportation difficulties or class size affect students who experience intra-self or self/other incongruence, possibly triggering drop-out. Students who experience both kinds of congruence are much less likely to allow single variables to affect educational decisions, and consequently they are less likely to drop out.

To test the congruency portion of his theory, Boshier (1973) collected data on over 2000 participants in noncredit adult courses in New Zealand. Data included social, psychological and demographic characteristics (p. 262). Both drop-outs and persisters were asked to complete the Personality and Educational Environment Scales (PEES) which measured aspects of intra-self and self/other congruency as defined by Boshier (1972). He found that,

> . . . dropping-out of an adult education class is associated with student/educational environment incongruence, whilst correlations between self/other and intra-self incongruence . . . suggest that

> incongruence initially resides within the participant and is 'projected' or 'generalised' (the self being the initial stimulus) onto or into the adult education situation (1973, p. 274).

In other words, students may be predestined to experience incongruence with their environment if they are already experiencing intra-self incongruence. Whether or not this is the case, Boshier did conclude that incongruence and consequent dissatisfaction with the educational environment influenced a student's decision to drop out. This conclusion corresponded with the conclusions of Spady, Tinto and Pascarella and Terenzini.

Bean and Metzner

While Boshier's work paralleled the work of Spady, Tinto and Pascarella and Terenzini, Bean and Metzner (1985) built on the work of these authors, adapting the theory for nontraditional students and developing a new model. Writing in 1985, Bean and Metzner recognized a different educational context where women, minorities and older students were participating in higher education in greater numbers than in previous decades. Like Boshier, Bean and Metzner targeted nontraditional students; however, rather than study attrition from noncredit courses only, the authors focused on nontraditional students who took credit courses and who may or may not be seeking a degree. Specifically, they addressed the problem of higher rates of attrition for nontraditional students taking college credit courses. The authors noted; "In spite of the spectacular growth in nontraditional student enrollments, the likelihood of nontraditional students finishing a degree program is much less than for traditional students" (1985, p. 487).

Bean and Metzner (1985) recognized that the phrase "nontraditional student" had multiple meanings. Instead of narrowing the definition, the authors defined traditional students as those who reside on campus, are between the ages of 18 and 24, and attend college full time (p. 488). Nontraditional students are those who lacked one or more of these elements. Because of this lack, according to Bean and Metzner, the nontraditional student does not "greatly change his or her social environment" when attending college, and consequently does not "become socialized to the values of their student peers or faculty members . . . " (p. 489). Referring to the work done by Spady, Tinto and Pascarella, the authors wrote, "One defining characteristic of the nontraditional student is the lack of social integration into the institution; therefore, a different theory must be used to link the variables in this model" (p. 489). Instead of the emphasis being on social integration, the authors suggested that academic and environmental variables are much more important to the nontraditional student.

Bean and Metzner presented a new model that retained the longitudinal nature and the inputs or background variables of Tinto's model. In 1987 the authors slightly adapted and tested their model. Academic variables (study hours and skills, academic advising, absenteeism, major and job certainty, course availability) as well as environmental variables (finances, hours of employment, outside encouragement, family responsibilities, opportunity to transfer) were given more emphasis than social integration variables (memberships, faculty contact, school friends). The model had two outcome elements: academic (grade point average); and psychological (utility, satisfaction, goal commitment, stress) (1987, p. 17). Coupled with the intent to leave, these outcome elements ultimately influenced the decision phase to drop out (1985, p. 491).

The key to Bean and Metzner's model was that it emphasized factors other than social integration. The authors noted (at the time of writing) the lack of research focusing on nontraditional students who were not on campus or in the classroom full time and consequently were not affected by the same social integration variables as traditional students. After presenting their model, the authors tested it on nontraditional students at a "primarily commuter university" (1987, p. 19). Information was collected from over 600 freshman commuter students from the registrar's office (grade point average, high school rank, etc.) and an in-class questionnaire. The questionnaire collected data on goals and goals commitment, satisfaction (with course), academic skills, finances, family and job situation, faculty contact, campus organization membership, intent to leave and other variables that related to the model (1987, pp. 20-21). The authors found that "dropout . . . result[s] from poor academic performance and little commitment to college. Specifically, the five variables which had the greatest effect on attrition were: GPA, intent to leave, hours enrolled, absenteeism, and high school performance" (1987, p. 32). As predicted, social integration variables did not affect drop-out as much as other variables, nor did they affect these nontraditional students to the same degree as traditional students, as found in previous studies. One unexpected finding was that out-of-class faculty contact seemed to have a positive correlation with intent to leave (1987, p. 25). However, the authors cautioned that the correlation was small. In addition, other unexplored factors could possibly have been related to this finding, such as the fact that it was a commuter school, and out-of-class faculty contact may have positively influenced students to transfer.

Conclusion: Retention of Adult Students

The key similarity between the work of Boshier and Bean and Metzner, was that both studies raised the problem of retention/attrition to a different level by focusing on nontraditional, adult students. This was in part because at the time of writing, institutions considered nontraditional students as an emerging force that would help increase enrollments.

Writing in an earlier time period Boshier (1973) took the research view that retention was influenced by "congruence" including congruence (or "fit") between a student and the educational environment. This was similar to Spady and Tinto's work which emphasized social integration. Bean and Metzner (1985), writing over a decade later and perhaps benefitting from increased knowledge about nontraditional students, rejected research that treated nontraditional and traditional students the same. Specifically, they noted, external environmental variables such as family and job factors have a much greater influence on nontraditional students than social integration variables.

Distance Education

Authors such as Bean attempted to adapt existing models of student departure to nontraditional students who were not on campus full time. The next step in the evolution of the research was to test the existing models with students who were attending college via distance education courses. Sweet, Bernard and Amundsen, and Kember all utilized the model development and research from these prior studies and tested the adaptations in a distance learning setting.

Sweet

In research using students studying at a distance, Sweet (1986) used elements from Tinto's model adapted to more readily suit distance learners. Noting that "to date, the Tinto model has not been applied empirically in a distance education setting," (p. 202) he synthesized prior research that adapted Tinto's model for nontraditional, commuter students. In particular, Sweet was concerned with the social integration portion of Tinto's model, especially the student-faculty contact. Recognizing that distance students often reported feeling isolated, he wrote that "the importance of student-faculty interactions to the student's sense of institutional integration may be especially important in a distance education setting" (p. 203).

Sweet collected background, course preference and academic purpose (goals) data via a written survey from 356 students attending the Open Learning Institute in Richmond, British Columbia. After the course was over, he collected additional information via a telephone survey from both completers and non-completers. In both surveys, the information collected was intended to pertain to the various elements of Tinto's model. The variables were adapted by Sweet to fit a distance education context. Student characteristics (background) included age, sex, geographic location, locus of control (a self perception personality trait) and goal expectation. Academic integration variables included perceived academic performance (rather than grades), and course materials ratings (text-based distance learning materials). Social integration was based upon one item: the rating the student gives her/his telephone tutor. This variable was, according to Sweet, a substitute for the student-faculty contact traditional students experienced and, in conjunction with the course material, comprised institutional interaction. Attitude orientation (which Tinto referred to as commitments) included goal satisfaction and institutional commitment. While in Tinto's research goal commitment referred to degree attainment, many of the students Sweet studied were not attempting to get a degree. Instead, goal satisfaction was operationalized as "student satisfaction with the overall course, expressed in relation to their personal goals" (p. 207). Institutional commitment was defined simply as whether the student intended to enroll in another course at the Institute within the year. Finally, persistence included assignment completion and exam completion (p. 206).

Using discriminant analysis, Sweet found that background characteristics, academic and social integration, goal satisfaction, and institutional commitment explained 32% of the variance in persistence-withdrawal decisions, with the "greatest contribution to predictive efficiency . . . made by academic and social integration variables (18%)" (p. 208). Sweet also found, contrary to previous studies which discounted the impact of social integration on nontraditional students' persistence decisions, that "social integration -- in the form of tutor telephone contact -- was significantly related to institutional commitment" (p. 210). Sweet's final conclusion was that use of Tinto's model, with adaptations, was appropriate for use in a distance education setting.

A significant difference between Sweet's study and prior research was its focus on single course drop-out as opposed to program or institutional drop-out. This step was logical for nontraditional students (including distance learners) because so many were not attending college full time. However, there may have been problems with comparing two different types of drop-out. The reasons or causes for drop-out from a course may not have been comparable to the reasons or causes for drop-out from an institution.

Bernard and Amundsen

While Sweet adapted Tinto's model to examine single-course drop-out in distance education courses, Bernard and Amundsen took Sweet's method one step farther, and focused on course differences. Their intention was to use Tinto's model "to investigate the antecedents to drop-out in courses that differ widely in content and instructional goals" (1989, p. 27). Noting that the influence of a single course on institutional drop-out was minor, the authors concluded that "Within a particular course, issues like the structure and delivery of the content, and intended learning outcomes, may have influenced decisions to drop out as much as student characteristics and attitudes" (1989, p. 31).

Bernard and Amundsen utilized a learning theory based upon the concept of varying degrees of control of learning. In some courses, learning was strictly controlled toward fixed goals and these courses, the authors suggested, "more naturally involve academic integration as an explanation for student satisfaction and ultimately, course completion" (p. 31). Alternatively, courses with less control "would most likely draw from the elements of personal history and social interaction in the Tinto model" (1989, p. 32). The authors compared three courses exhibiting varying degrees of controlled learning: accounting, business administration and communication. Based upon informal evaluation, the authors determined that the accounting course exhibited the highest degree of controlled learning and "lends itself best to self-instruction. The communication course, on the other hand, had the lowest degree of control and "the objectives . . .

encouraged the consideration of multiple perspectives." The business administration course fell somewhere in between these two courses in terms of control (p. 36). The main purpose of the study was to "determine if clusters of variables found to discriminate between completers and non-completers in distance education courses . . . account for variation equally across courses that were qualitatively different in nature" (1989, p. 36).

Using a "self-report learning behaviours and attitudes questionnaire" (p. 32), the authors collected usable data from over 400 students enrolled in three different distance education correspondence banking courses. The data addressed five areas from Tinto's model. In addition, the authors administered a survey collecting demographic information and information concerning previous distance education experience.

Bernard and Amundsen found differences among the three courses. Specifically they found that:

> Background characteristics and Institutional commitments contribute to the explanation of dropout in the communication and business administration courses, while Goal commitment appears only in the accounting course. Academic integration is important in all of the courses, but it dominates in the accounting courses, is less important in the business administration course, and even less so in the communication course. Social integration appears only in communication and primarily on the strength of the item -- peer contact (p. 40).

The authors concluded that the nature of distance education courses, including course goals and instructional methods, may have influenced the departure decisions of students in these classes.

Kember

While Sweet and Bernard and Amundsen, making moderate adaptations, attempted to test Tinto's model on distance learning students, David Kember developed a new adapted model more suited for distance education. He based his new model upon the work of Tinto and Spady, both of whom used Durkheim's research on suicide as an analogy for student departure in their theories. In particular, Kember focused on Tinto's model, in part because it was "a development from Spady's model" and it was the most widely used (1989, p. 284).

Similar to Sweet and Bernard and Amundsen, Kember's model took into account the differences between traditional learners, nontraditional learners, and distance learners. He pointed out that nontraditional learners, while different from the traditional, full-time, 18-21 year old student, may commute to classes which are taught in a traditional, face-to-face manner (1995, p.34). Kember distinguished distance learners from both traditional and nontraditional learners because they are not generally in the same room with the instructor during instruction, and thus, are *taught* in a different manner. He wrote:

> There are difficulties . . . in directly using the Tinto model in the distance education situation. The Tinto model was derived for full-time education by face-to-face teaching of students who recently left school and stresses the importance of social and intellectual involvement within an institution upon student behaviour. The distance education scenario is characterised

> by part-time, mainly mature students who study at a distance from the campus of the institution (Kember, 1989, 284).

Despite some similarities in the goals of Kember, Sweet, and Bernard and Amundsen, Kember criticized both prior studies for not including a more comprehensive social picture of part-time students. He argued that the two revised models these studies produced

> . . . cannot conceptualize all those social impacts on family, work, and social life that must result from a commitment to part-time off-campus study. Neither study takes any account of the rich and varied influences that the home and family situation, the demands of work and the influence of social lives have on the progress of distance education students towards course completion or withdrawal (1995, p. 46).

To accommodate the differences between the two types of students, Kember proposed a new longitudinal model for distance learners that expanded and adapted Tinto's model. Researching student characteristics, the author maintained that certain variables relate to retention of both traditional and distance learners, but that other variables, such as high school performance, may have a weaker link to distance learners who are older, more mature, and have a greater time gap between high school graduation and current studies.

Kember modified Tinto's commitment portion of the model to drop "institutional commitment." Presumably, since many distance learners are not on campus, institutional commitment does not have a significant impact on retention. However, Kember acknowledged that it is possible to foster affiliation between students and the institution by providing adequate, accessible and timely academic support. Goal commitment remained in the model with an expanded definition that included intrinsic motivation (learning for learning's sake) and extrinsic motivation (job or degree orientation).

The Kember model, tested and revised several times during the course of quantitative and qualitative research, contained two tracks. Both tracks began with an entry characteristics component which included previous education, family status (married, children), employment and demographic information (age, sex, length of travel to take class, salary). Kember and previous authors pointed out that while these characteristics did not stand alone as significant predictor variables, they influenced and interacted with other variables and in this sense were important.

After entry characteristics were taken into consideration, the model then split into two different tracks, one positive and the other negative, which merged again at the end of the model. The positive track included social integration and academic integration, both positive components which contributed to the retention of a student. The negative track included external attribution and academic incompatibility, both forces which pressed a student to drop out. The tracks then merged again at a component consisting of grade point average and then immediately to a cost/benefit component. At this point a student was able to make certain decisions and then circle back to go through the model again. This recycling continued throughout the academic careers of the distance education students, who could switch tracks at any given point. Ultimately the cycles ended with an outcome: retention or drop-out (1995, p. 64).

Because of the different circumstances of distance education students, Kember's social integration variable differed from that of Tinto's model. He wrote:

> Students enrolled in open learning courses are normally part-time students. They could well be in full-time employment. They may have a family to support and look after. They will be meshed in an existing social network. On becoming students they will not be able to undergo a rite of passage and leave behind all these existing commitments and obligations. The home, social and work environment remains important in distance education as study normally takes place in the home and most students have a full-time job to complement or conflict with their study (1995, pp. 79-80).

In other words, the full immersion into college life cannot take place as it would with traditional students. Kember's statement is similar to previous statements from Sweet (1986) and Bernard and Amundsen (1989) concerning all nontraditional students as well as distance education students.

The social integration component was modified by Kember to incorporate those circumstances that exist for nontraditional and distance education students. He included three subcomponents in this area: enrollment encouragement; study encouragement; and family support. Enrollment encouragement comes from either the employer (in the form of verbal or financial support) or the family. Study encouragement is similar to enrollment encouragement, only it occurs after the student is enrolled. Again, the employer can contribute to study encouragement, making allowances (such as time for study) as opposed to viewing education as competition for the employee's time. Likewise, family can offer study encouragement by sharing the education and career goals of the students. Friends and fellow students also offer study encouragement. The final subcomponent is family support. This involves the student's role and how it is viewed by the family, taking into consideration the financial drain, time spent away from the family and general stress that accompanies studies.

Parallel to social integration, on the negative track, is external attribution. Kember noted that when students succeed in their studies they often attribute their success to their own actions, while drop-out or failure is most often blamed on external circumstances whether or not this is the case. A weakness in determining "causes" for drop-out occurred because often students are asked why they dropped out after the decision has been made. These types of surveys are described as "autopsy" studies (Bean and Metzner, 1985; Kember, 1995; Knoell, 1960 as described by Spady, 1970) and there are obvious problems relying on self-reported information when esteem or pride is at stake. Because of the nature of how this information was obtained, Kember used the term "external attribution" but actually defined this component as failure to socially integrate.

Three subcomponents of external attribution were derived from the most-often cited reasons for dropping out on numerous surveys. The first, insufficient time, is "the most frequently cited reason for withdrawing from a course" (1995, p. 91). Work, family and friends (social life) were the three primary factors which competed for a student's time for study. The second subcomponent, distractions, is similar to the time factor, only the drain is more of mental energy and attention than time. Again, work, family and friends interfere with concentration on studies by either through distractions (such as noise) or in more subtle ways such as providing temptations more attractive than studying. The final subcomponent, unexpected events, include single events such as job change or illness (of the student or family member).

The second component of both tracks involve the academic integration element. The successful completer adequately integrates academically, while the student who drops out experiences "academic incompatibility." There are parallel subscales for both integration and incompatibility including approach, motivation, course evaluation and language.

Approach, according to Kember, is either "surface" or "deep." Surface approach is used by students who rely on memorization of important facts to pass tests while deep approach is used by students who attempt to find the main ideas of what they read and apply what they learn to their own lives. Motivation comes from extrinsic rewards (simple attainment of a qualification or degree) or intrinsic awards (learning for interest or for "learning's sake"). Language refers to the student's mastery of the English language. Kember's sample was composed of students attending a university in Hong Kong and whose primary language was Chinese.

This portion of the model is applicable to other students who are not studying in a second language. Students who have trouble with English have the added burdens of translation and interpretation. Students who are not using a second language may also encounter problems if they have difficulty reading or understanding the material. The final component of academic integration/incompatibility is course evaluation. This includes the student's relationship with the course materials and the administrative support. Kember wrote:

> When considering the study package, the student is mainly in need of normative congruence. There are questions as to whether the content and curriculum design are compatible with the congruence between the student's approach to study and the instructional design of the course of study. Ideally the media mix employed should suit the learning style of the students (Kember, 1995, p. 111).

This relationship between the student and the course materials extends to administrative support and any other affiliation with the institution, and corresponds with Durkheim's concept of collective affiliation. According to Kember it "is the quality and quantity of contact between the student and the organization . . . . The personal contact of tutorials seems to be particularly effective at providing collective affiliation" (1995, p. 114). This benefit of personal contact is similar to what other authors have found (Pascarella, 1980; Spady, 1971; Terenzini and Pascarella, 1977; Tinto, 1987). Normative congruence, also borrowed from Durkheim, is evident when the course materials and the manner in which the course was taught are both compatible with the student's learning needs and interests.

The final component of Kember's model before students presumably completed or dropped out of a course is cost/benefit analysis. At this stage, with grade point average factored in, the two tracks of the model converge. Students assess financial and nonfinancial costs (tuition, time, loss of earnings) against benefits (degree, job opportunities, skills, social interaction). This is part of the longitudinal process and students continue to make the analysis over time with different values each time. During periods of transition, such as job change, for example, the student reassessed costs and benefits of taking distance courses and made new decisions based upon new circumstances. Kember wrote:

> The presence of the recycling loop and the possibility of switching tracks is important in both theoretical and practical terms. Without the possibility of switching to another track students become locked onto an inevitable path towards either success or failure. This gives rise to a similar problem to that inherent in research into relationships between entry characteristics and course outcomes. When a causal relationship is posited it implies inexorable progress towards some predestined goal regardless of the actions of the student or the institution. The presence of the recycling loop and the possibility of re-entry on the alternative track raises quite different implications. Progress is no longer inevitable but now depends on the efforts and attitude of the student and the actions and environment of the institution. Both parties have an opportunity to influence outcomes and by implication a responsibility to play a part in ensuring that desired outcomes are achieved (1995, p. 127).

Kember's model allows a degree of control by the student and the institution over retention/drop-out decisions. The outcomes of the model were measured in two ways: grade point average and the percentage of courses completed. Kember included both measures because he argued that overall academic success was important, not just stemming attrition (1995, p. 128).

After developing his model, Kember tested it quantitatively with an instrument called the Distance Education Student Progress Inventory (DESP) administered to over 1000 students (with a 61% response rate) in three different university programs in Hong Kong (1995, p. 134). Kember used the DESP Inventory to collect background information, and using a Likert scale, asked several questions relating to each component of both tracks of the model (social integration, external attribution, academic integration, academic incompatibility). Outcome variables consisted of grade point average and the ratio of number of courses failed (or not completed) to number of courses attempted. After several tests of reliability, the instrument was somewhat modified and tested again with over 500 Hong Kong students from three different institutions. Although he admitted that there was still a great deal of variance which was not explained by the model, Kember found that "the model can, with reasonable confidence, be used to make predictions and derive implications for practice" (1995, p. 155). Kember suggested strategies to improve the instructional design of distance education courses to increase integration. He also suggested methods of increasing and improving academic integration through the use of a tutorial system and social integration through counseling.

Conclusion: Distance Education

Research on retention in distance education is relatively new. It builds on the retention research of traditional students and the later work examining nontraditional students returning to college.

There are three themes running throughout the research on retention in distance education. First there is the concern over what to do about the social integration component of retention models. The component is too important to disregard, yet it is very difficult to translate social integration into a distance education setting. Sweet attempted to find substitutes such as tutor ratings for student-faculty contact. Kember redefined the whole concept of social integration to include all of the facets important in a distance education student's life, such as family and job peers.

A second important theme in the retention research in distance education is the transition from examining institutional or system drop-out to focusing on one program or course. This aspect of the research exists in part of necessity, since so many distance education students only take one or two courses. It is, in fact, a feature of many of the nontraditional students that obtaining a degree is not the essential goal of study. Thus, as a problem to be examined, researchers narrowed the focus and attempted to find the drop-out reasons or causes on a course-by-course basis. This concentration on trying to "fix" courses, led to a secondary effect: examination of teaching and learning styles. Bernard and Amundsen (1989), for example, test the differences among courses that have varying degrees of controlled learning, while Kember incorporated a whole learning style component (surface versus deep approach) into his model.

The third theme which reinforces the research on nontraditional and traditional student retention, is the apparent benefit of student-faculty contact. Although Bernard and Amundsen mentioned one study they reviewed which did not have similar findings, all the authors seem to agree that student-faculty contact has a positive influence on retention decisions by students.

Factors Affecting Student Drop-out

Having reviewed several models and their development, this part of the literature review examines studies that sought out individual causes of or influences on drop-out decisions. In general, the studies attempted to identify either internal (student) or external (institutional) elements that explain retention/attrition rates in a particular program. Several studies, in accordance with the previously reviewed models, examined the combination and interaction of various factors.

Internal Factors

Research on the causes of attrition in distance education courses usually include background variables. While background variables alone are not "causes" for drop-out, they have been recognized by the research as important influences on other variables. For example, high school grade point average (GPA) may be a good predictor of successful completion of a distance education course at the college level, but it is not the GPA that is "predicting" but rather the study skills and goal orientation that go with it.

Background variables indirectly influence or relate to other variables that may predict retention or attrition in distance education courses. For this reason, background variables have been recognized as "internal factors." However, none of the research indicates that background variables alone directly impact drop-out decisions and for the purposes of this study they are included in conjunction with other variables.

Several authors have hypothesized that the reasons and/or causes of student attrition come from the students themselves. There are, according to these authors, factors which cause a student to drop out which are directly linked to her/his psychological make-up, personality, or learning style. This research usually begins with some test of a student's intellect, personality or study habits and then collects withdrawal/completion information at the end of the course to determine which students dropped.

Studies linking student factors to retention or course success in distance education have usually aimed at implementing particular policy decisions. For example, if consistent matches are made between students' beginning test scores and their departure decisions, then the test can be effectively used to predict who will complete and who will drop out. Using this information, the policy implication suggests that if a particular profile could be determined of a student who is likely to drop out, then counselors and faculty may be able to intervene before the drop-out decision is made (Biner et al., 1995; Boshier, 1972, p. 98; Dille and Mezack, 1991; Gibson and Graff, 1992, p. 49). Another policy consideration is instructional design. Using learning styles, locus of control and personality information, faculty and instructional personnel can design distance education courses more suited for individual distance education students (Gunawardena and Boverie, 1993; James and Gardner, 1995).

Control of one's learning experience is a concept researchers have linked to completion of distance education courses. Reviewing the distance education literature, Garrison and Baynton (1987) defined control as "composed of three major dimensions: independence, power, and support" (p. 3). Independence refers to the student's control over learning objectives, activities and evaluation. Power includes the students personal attributes such as motivation, intellect and study skills that give her/him the "power to participate" in the learning. Support involves the resources available to the student including course availability, materials needed, and faculty and tutorial assistance (pp. 6-7). The authors contended that communication between the student and the instructor is the key to negotiating and balancing the control a student has over learning, and that the extent of control is influenced by the course content. In other words, depending on what is being learned, the instructor may be able to allow more or less control to the student. The frequency and immediacy of communication between a student and the instructor are influenced by the technology used in the distance education course. The authors concluded that "Two-way communication provides the means for negotiation and dialogue. This in turn determined the balance of control which would maximize educational development" (p. 14). Although Garrison and Baynton extrapolated their concept of control from the literature (rather than from independent research) their emphasis on communication reinforces the suggestion by previous research that student-faculty contact has apparent positive effects on student retention in distance education.

Dille and Mezack (1991) measured three areas of student factors which may influence retention in distance education courses: locus of control; learning style; and demographic variables. Studying 151 students enrolled in telecourses, they attempted to "identify predictors of high risk telecourse students in a community college in order to provide information to other institutions that might wish to lower telecourse attrition rates . . . " (p. 25). Locus of control was defined as internal (belief that academic success or failure was due to individual abilities or efforts) or external (belief that outside influences control academic success or failure) and was measured with the Rotter's Internal-External Locus of Control Scale (p. 26). This definition differed from Garrison and Baynton's (1987) concept of control in that Dille and Mezack were concerned with students' perceptions of what influenced their success, rather than the amount of student control over the learning activities. Learning style was measured with the Kolb Learning Style

Inventory (LSI), which identifies four learning styles described by Dille and Mezack as follows: "Accomodators excel in situations that require adaptation to specific situations. . . . Divergers are people-oriented, imaginative, and emotional. . . . Assimilators are concerned with abstract concepts rather than practical use. . . . Convergers excel in the application of ideas. . . " (p. 28). The demographic data collected included gender, ethnicity, marital status, age, and grade point average. The authors measured academic "success" based upon course completion with a grade of "C" or better.

Dille and Mezack found that students who scores indicated an internal locus of control were less likely to drop out of a telecourse. They also found that "the less concrete one's learning style, the better suited one is to learn in the telecourse format" (p. 31). Demographically, the authors found that older students, married students, students with higher grade point averages, and students with more credit hours taken all had higher rates of persistence compared to younger students, unmarried or divorced students, students with lower grade point averages, and students with less credit hours taken. Seemingly at odds with other studies, the authors found no significant impact of sex, number of children living at home, reason for taking the course or importance of completing the course. These last two factors were comparable to the motivation/goals element of both Tinto's (1987) and Kember's (1995) work, which both these authors found influenced retention.

Building on Dille and Mezack's work, Biner, Bink, Huffman and Dean (1995) attempted to identify a "personality profile" of students who take telecourses and to identify particular traits that would predict success in these courses. The authors administered the Sixteen Personality Factor Questionnaire to over 400 students, taking the course either in the class or at a remote site via television, in order to determine: if there were personality differences between the students who take courses in the class versus those who take them at the remote site; and to see if any individual traits could be used to predict success (as measured by completion and grades) in the course. The authors found differences between the in-class students and the telecourse students, noting that the "telecourse students tend to be more intelligent, emotionally stable, trusting, compulsive, passive, and comforting than traditional students" (1995, p. 56). Specific personality factors the authors found to positively influence telecourse success included self sufficiency and introversion. In addition, Biner et al. found that telecourse students who were more expedient (rather than conscientious) were more successful. The authors suggested personality testing and subsequent advising or tutoring intervention strategies for students who may not successfully complete a distance education course based on their personality profile.

The connection between learning styles or personality traits and successful completion of college courses (traditional or distance) has generated controversy. There was some research indicating that the connection between specific learning styles and completion is insignificant (Gibson and Graff, 1992). In addition, the very existence of learning styles is controversial. James, Blank, Morrison, Koch, Shapiro, Schiaper, and Tindell (1996) emphasized two issues in this debate. First, there is evidence that a student's ability to learn may not have as much to do with learning style as it does with the instructor's teaching style and/or the actual material being studied. Second, there is a lack of strong instruments which are both reliable and valid to determine learning style.

Policy implications are limited concerning learning styles and/or personality traits. Many of the studies which found evidence of a connection recommend testing students before allowing them to register for distance education courses. A variety of instruments have been used (not all effective, as James et al., 1996, point out) in these studies which has led to the problem of choosing one instrument which was both valid and reliable. Testing has generated numerous policy problems including administrative costs for both the test itself and administrative personnel. Finally, none of these studies has found a method which is able to predict, based on personality traits or learning styles, with accuracy the potential success or failure of a student registering for a distance education course. There are also ethical considerations if certain students are counseled to take only in-class courses or are discouraged from taking distance education courses altogether or without some type of assistance.

External Factors

External factors correspond with the social and academic integration segments of Tinto's and Kember's models and include both institutional and environmental elements. Institutional influences on drop-out decisions included registration procedures, study materials, tutorial support, library or resource access, finances (ability to pay for college), time allotted for the course and individual assignments, and faculty support. Environmental influences encompassed anything that affects the student's study environment. This includes job influences (employer support, work time interfering with study time, etc.), family situation, outside activities and essentially anything that can compete with time spent on studying. Contact with faculty, an external factor essential to academic and social integration, is treated separately in the next section.

Zajkowski (1997) conducted a study of how finances affected persistence in distance education courses in New Zealand. Specifically, she studied the rate of persistence in relation to job changes, fee increases and employer support and/or reimbursement. Zajkowski found that when students changed jobs in the middle of taking a distance course, they were less likely to complete the course. She hypothesized that this may be because the new job may not have required the skills learned in the course or that the student was redirecting her/his time into doing well at the new job, leaving little time for study (p. 16). In addition, the financial support of an employer affects completion rates, as the study indicated, "Where the employer paid the fees straight-out, there was further increased likelihood of completing all courses and no cases of complete failure" (p. 22). In other words, the external factor of financial and employer support positively influenced students' retention decisions.

Woodley and Parlett (1983) studied retention specific to the Open University in Great Britain. The authors defined "wastage rate" as "the percentage of students who finally registered but who did not gain a course credit...it includes both 'withdrawal' and 'failure'" (p. 2). Looking at several variables, the authors compared wastage rates in an attempt to isolate particular factors that influenced retention rates more than others.

Using the results of two different surveys of Open University students, the authors outlined a variety of student and course factors which hinder or encourage retention. Student factors influencing retention, similar to Tinto's assessment, included intrinsic motivation, goals and the desire to transfer or take a break. Student factors also included things not necessarily within the control of the student, such as grades, work hours, family status, finances and study environment. Course factors included content, design, difficulty and materials (including late mailings and poor transmission of broadcasts).

Controlling for student status (new or continuing), the authors examined certain educational and demographic variables including sex, age, previous educational qualifications, job type and status, geographic region of student's home, number of credits already earned prior to beginning of the year, year of entry (first enrolling in the institution), number of credits taken, completion of prerequisite courses and the skipping of second year courses (i.e. taking 3rd year courses right after the first year). Although the authors found several relationships between each of these factors and the wastage rate, the strongest appeared to be prior number of credits and the year of entry. The more credits a student already had, the more likely that student would complete and pass the current course. The longer a student had been enrolled in the Open University, the more likely that student would drop out.

Woodley and Parlett outlined the most pressing reasons, according to previous research, for students dropping out of distance education courses. Institutional reasons listed included the student's contact with the tutorial staff. Specifically, the authors explained that students have problems when "tutorials [are] too few in number, too distant, at inconvenient times, [have] poor value when attended. [There are] problems with individual tutors who [are] uncontactable, unhelpful, slow to mark . . . give poor grades, etc." (p. 7). Based upon student response, unclear or insufficient contact with tutors influenced their decisions to drop out of Open University courses.

Conclusion: Factors Affecting Student Drop-out

Studies examining individual influences on student retention in distance education courses have had several common elements. First, most of the studies began as a search for solutions to program-specific problems. The studies provided explanations of higher attrition rates for distance education courses and questions as to the cause. Second, as with the research on distance education models and nontraditional students, these studies focused on *course* rather than institutional or system-wide drop-out. In other words, the focus on the problem required narrowing the study area, particularly when comparing the method of distance education course delivery to that of traditional, in-class delivery.

Finally, in two of the studies, faculty or tutor contact was mentioned as important to retention in distance education courses. Garrison and Baynton (1987) noted the significance of increased communication between students and faculty and tutors, while Woodley and Parlett (1983) found that many students who did not complete distance education courses blamed, at least in part, the lack of good, tutorial contact. This relationship between faculty or tutor contact and retention in distance education courses has further implications for the present study and will be treated in more depth in the next section.

Faculty Contact

Studies about the effects of faculty relationships with college students resembles retention research in that most of it focused on traditional student populations. In general, faculty contact was usually only one of several factors researchers examined in studies of influences on student outcomes. Likewise, persistence was usually only one of several independent variables, or outcomes, included in the studies. This subsection begins by reviewing a study of faculty contact and its influence on traditional students' persistence done by Centra and Rock in 1971. This is followed by a review of work done by Terenzini and Pascarella, also with regard to traditional students. Next is a review of a study by Towles, Ellis and Spencer, that attempted to identify effects of faculty contact on distance education students. The section concludes with a review of a recent study of faculty perceptions of visual cues from students in an interactive televised course by Mottet (2000).

Centra and Rock

Centra and Rock (1971) examined students' perceptions of various environmental factors including: activism (student involvement in politics for example); curriculum flexibility (student power over choosing courses and major); challenge of school work (increased concern for social life was equated with lack of challenge); cultural facilities (students' views of campus facilities and cultural programs, such as music and art); and faculty-student interaction ("the extent to which students feel that the faculty are interested in teaching and in students as individuals" [p. 625]). These factors were derived from the Questionnaire on Student and College Characteristics (QSCC).

Centra and Rock then defined two student types, "overachievers" and "underachievers." The definition came from matching Scholastic Aptitude Test (SAT) scores, which past studies indicated were an accurate predictor of achievement, and Graduate Record Examination (GRE) Area test scores. The GRE area tests included humanities, natural science and social science. The authors used regression to establish the two student types: overachievers were students who attained much higher GRE scores than expected based upon previous SAT scores; and underachievers were students who attained much lower GRE scores than expected based upon previous SAT scores.

Assessing students from 27 different colleges, the authors divided the subjects and colleges into three groups, based upon similar scores on the QSCC. Separate analysis was done for the humanities, natural science and social science area tests. With regard to faculty-student interaction, the authors expected that schools that had high scores on the QSCC (indicating a high level of faculty-student interaction) would have a mean GRE residual indicating over achievement. The reverse was expected to be true for schools that had low interaction, that is, these institutions would have a mean GRE residual indicating underachievement.

Comparing the residual means of all three area tests, the results showed that there did appear to be a positive relationship with high scores on the faculty-student interaction portion of the QSCC (though the relationship appeared stronger for the humanities and natural sciences). The authors wrote, "the results of this study indicate that . . . Faculty-Student Interaction tended to be linearly related to achievement, in that students at colleges with high scores on this scale more often overachieved on the GRE Humanities and Natural Science Area Tests; in contrast, students underachieved on all three of the tests at colleges with low scores on this scale" (Centra and Rock, 1971, p. 632).

Centra and Rock studied several influences on student outcomes, consequently, results about faculty-student interaction may be influenced by the interaction of these various factors. In other words, faculty-student interaction may in part be influenced by other campus aspects mentioned by the authors such as curriculum flexibility or cultural facilities. Another potential flaw is the study's lack of consideration for other outside influences such as peer influence (Pascarella, 1980). However, despite its flaws, Centra and Rock were among early researchers finding evidence that there did appear to be a link between faculty contact and student outcomes.

Terenzini and Pascarella

A review of research on the influence of student-faculty contact on various college outcomes, including student persistence, was done by Pascarella in 1980. In particular, the author was interested in the effect of informal contact, that is, contact which takes place outside the classroom. He wrote:

> . . . other factors being equal, we might anticipate that as faculty members occupy an increasing proportion of a particular student's interpersonal environment, primarily through informal nonclassroom contact, the greater the likelihood of the student's being significantly influenced by faculty attitudes and intellectual values (p. 546).

In other words, the more time they spend with students, the greater the influence faculty had on those students, and presumably, their values, attitudes, goals, etc. The next logical step was to assume that most faculty value higher education and if this value permeated the faculty-student relationship, then students would be influenced to achieve, maintain educational goals, and/or persist in college.

Pascarella noted that early studies on faculty contact indicated a positive influence of informal faculty contact on educational outcomes, but that these studies were done on small institutions whereas " . . . student-faculty contact in most colleges and universities is largely restricted to formalized, somewhat structured situations such as the lecture, laboratory, or discussion section" (p. 547). The reasons for limited contact included student choice and the lack of time faculty have to develop social relationships with students.

Pascarella reviewed over 30 studies which attempted to measure influence of student-faculty contact on various educational outcomes. Seven of those studies included college persistence as an outcome. Six of the studies found significant positive effects of student-faculty contact and according to the author " . . . substantial evidence exists to suggest that student-faculty informal contact may be associated with college persistence" (p. 558). Four of the studies reviewed were authored or coauthored by Pascarella with Terenzini. These studies found that " . . . the quality of student-faculty informal interactions may be as important in influencing voluntary persistence/withdrawal decisions as the frequency with which such interactions occur" (Pascarella, 1980, p. 559).

In their 1979 study, Terenzini and Pascarella found that " . . . high levels of academic integration such as frequent informal contacts with faculty focusing on intellectual matters or perceptions of faculty as particularly concerned about teaching and students appeared to compensate for low levels of social and academic integration in other areas" (Pascarella and Terenzini, 1979, p. 209). The authors were particularly interested in "compensating" effects, that is, factors that compensated for some other lack (such as low income or low level of education for parents). These lacking factors usually correlated with high rates of drop-out, but the compensating factors might help overcome the negative effects of the lacking factors. Thus, students who may have been more prone to dropping out may benefit from a "compensatory" effect of quality faculty contact.

Terenzini and Pascarella built on prior studies and used the integration element of Tinto's model to make connections between faculty-student contact and student persistence. However, as with previous authors, they limited their studies to traditional students, usually freshmen, attending college full time and fitting the traditional age category of 18-24. Consequently, the effects found by Terenzini and Pascarella may not apply to nontraditional and/or distance education students.

Towles, Ellis and Spencer

Despite the significant influence of faculty contact on retention of students emphasized by Spady (1970, 1971), Tinto (1987) and Pascarella and Terenzini (1979), little research has been done to find similar effects on distance education students. I found only one study, done by Towles, Ellis and Spencer (1993), which attempted to directly link the influence of faculty contact and distance education students' persistence. Addressing the effects of increasing contact, the authors wrote:

> The primary means of furthering the social and academic integration was to increase faculty-initiated interaction with students through phone calls and correspondence, with the expectation that increased faculty-student contact would contribute to improve student-institution "fit" and,

> ultimately, would lead to increased rates of course completion, re-enrollment and student persistence. (p. 2).

The study was done at "the video-based distance education school of an independent university" (p. 2) and included 120 students in four different general education classes; 15 in each class were treatment subjects and 15 in each class were control subjects. The treatment group received faculty-initiated contact via phone, while the control group did not receive calls. Students represented all four years of study (freshman, sophomore, junior or senior).

Reviewing the group of students who completed the course, Towles et al. found no significant differences between students who received faculty phone calls versus those who did not receive calls (55% versus 45%). However, when the authors reviewed the group of noncompleters they found that only 36% of those students called failed to complete the course while 64% of the non-called students failed to complete the course. In addition, the authors found that the students in the upper levels of study had a higher percentage rate of completion. Specifically, 57% of the freshmen, 73% of the sophomores, 87% of the juniors and 100% of the seniors completed the courses. The impact of faculty phone calls had the most impact on freshmen and appeared to decrease as class level rose.

Towles et al. (1993) based their entire study on the importance of faculty contact and found that a significant number of the students who did not complete the distance education courses were not contacted by the faculty via telephone (compared to the experimental group which had phone contact). It is unclear from the study whether the students were traditional, nontraditional or mixed. Without this information it is difficult to determine other factors that might have influenced the drop-out decisions of these students.

Mottet

Citing a lack of research on the importance of faculty in distance education courses Mottet focused on distance education faculty and the importance of communication between faculty and students in these courses. Specifically the author wrote "the purpose of this study was to determine whether interactive television instructors' perceptions of students' nonverbal communication behaviours have any influence on their perceptions of their students and of their own satisfaction, effectiveness, and affect for distance teaching" (p. 147). In other words, Mottet sought a possible link between nonverbal communication from students and improved teaching and satisfaction by the faculty.

Mottet collected data from 157 instructors who had taught both traditional courses and interactive televised courses. The instructors provided information about their students' "nonverbal responsiveness" through visual and audible nonverbal cues for both a traditional course and an interactive televised course they had recently taught (or were currently teaching).

The author found that instructors had more difficulty perceiving nonverbal responsiveness from their students in the interactive televised courses as opposed to the traditional courses. He also found that the nonverbal responsiveness was "positively related to [instructors'] impressions of students, their perceptions of their teaching effectiveness and satisfaction, their perceptions of teacher-student interpersonal relationships, and their preference for teaching in the interactive television classroom as opposed to the face-to-face classroom" (p. 161). Connected to this finding was that "instructors' perceptions and evaluations of teaching effectiveness, teaching satisfaction, teacher-student interpersonal relationships, and selective preference of teaching venue tend to be higher in the traditional face-to-face classroom than in the interactive television classroom" (p. 162). Thus, from the instructor's perspective, these results indicated that the lack of "face-to-face" interaction between faculty and students might negatively impact instructors' impressions of their students which could then have a negative influence on teaching.

Conclusion: Context for this Study

Research on retention in distance education evolved from general retention studies beginning with work involving traditional students and later commuter, or nontraditional students. Since distance education programs were originally designed for the nontraditional student, it was a natural progression for distance education researchers to build on studies that focused on the unique attributes of the nontraditional student. As more students become adept at using computers and other technologically advanced equipment and tools, more so-called "traditional" students are choosing to take distance education courses, side-by-side with nontraditional students. This new, "mixed" classroom made prior research focusing exclusively on nontraditional student problems in the distance classroom inadequate.

When declining enrollments forced universities and colleges to address the "crisis" of lost revenue, initial research concerned with retention studied the population of "traditional" students because they were the overwhelming majority of participants in higher education. In the 1970s and 1980s, a new trend occurred -- the return of many older students to part-time study (Cross, 1981). Because these new students were more likely to drop out, the research expanded its focus to the "commuter" or "nontraditional" students. In particular, there was a great deal of emphasis on the unique obstacles these students faced in order to return and stay in school: full-time work competing with study time; family obligations; the length of time away from formal study; and many other previously nonexistent barriers which hindered retention.

In the past twenty years, acceptance of distance education in the United States as an alternative to traditional in-class instruction has increased (Brown and Brown, 1994, p.3; Holmberg, 1986, p. 1) . This fact influenced a new body of research concerned with retention in distance education. In the early iterations, most of the students in these distance education classes were similar to the nontraditional or commuter students studied in the past. The competing interests faced by nontraditional students (such as work and family commitments) that often took time away from studies and often caused attrition, also played a large part in the drop-out of distance education students. In addition, there are marked differences in the distance education courses themselves such as lack of interaction with the instructor and other students which are believed to negatively affect retention. In particular, previous research on traditional students found that contact with the faculty positively influences retention rates in the courses taught in-class. This poses a unique problem for distance education students who may rarely or never actually see their instructor face-to-face.

A recent article in *The Chronicle of Higher Education* presented evidence that distance education programs are in fact attracting a diverse group of students. The article indicated that many traditional as well as nontraditional students are taking these courses (Guernsey, 1998). If this is indeed the case, then previous research concerned solely with retention of nontraditional students only addresses half the problem.

The present study will use the prior research as a foundation. The first step will be to determine whether, in the context of a mixed class, (that is, one with both traditional and nontraditional students), there are differences in retention rates. This study will also attempt to determine whether these two groups of students view the amount of contact in a distance education telecourse in a different manner.

CHAPTER III

METHODOLOGY

The purpose of this study was to determine if there were differences in retention rates between two types of students (traditional and nontraditional) taking the same distance education telecourse. Another key purpose was to more fully understand differences, if any, between traditional and nontraditional students by examining other variables to see if they had any interaction effects with the variable of student type that influenced completion rates. The final purpose of this study was to determine if there were differences in perceptions of faculty contact between traditional and nontraditional students, and if there were differences in perceptions of faculty contact between completers and noncompleters.

This section describes the methods and procedures used for this study. The following subsections are included: description of the study; operational terms; research questions and hypotheses; the subjects; the procedures; the instruments; and the treatment of the data. In the discussion there are references to the appendixes where copies of the instruments and permission requests are found.

Description of the Study

I examined two types of students, traditional and nontraditional. I compared the successful completion rates of traditional and nontraditional students in a distance education telecourse. In addition, I examined the effects of four other variables that might have had an impact on completion rates. Finally, information was collected pertaining to students' perceptions of faculty contact in an effort to determine differences between traditional and nontraditional students, and differences between completers and noncompleters.

Operational Terms

Distance Education - There are many definitions of "distance education" and the meaning has changed and evolved over the past several years (see the Introduction section of this paper). Generally, to keep the definition as simple as possible, most researchers define distance education as any formal education that includes a separation of student and teacher either in time or distance or both. A more formal definition from Börge Holmberg (1986) states that "[d]istance education thus includes the various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same premises, but which, nevertheless, benefit from the planning, guidance and tuition of a tutorial organisation" (p. 2). In this study, the term "distance education" will adhere to Holmberg's definition.

Distance education telecourses (referred to in the study as "telecourses") - Telecourses are one specific type of distance education. Generally the content is taped and then televised on local or college stations and is usually available on video tape. These content tapes can be viewed at various times and there is usually no concurrent interaction with the instructor at the time of viewing.

There are seventeen courses offered via television at Tallahassee Community College, though not all seventeen are offered every semester. These courses are broadcast at various times, one to three times a week, on a local television channel programmed by the college. Tapes of the course lectures are also available from the library. As described in the 1997 catalog, "Telecourses are equivalent in content and skills mastery to traditional courses taught on campus. Generally, telecourses involve on-campus group sessions (such as an orientation meeting and help sessions) and scheduled examinations. Telecourses are taught by regular teaching faculty who are available by appointment for additional assistance" (p. 78). The students pick up a course syllabus, which lists the first class meeting, at the time of enrollment. The syllabus also includes the dates and times of broadcasts and the instructor's name, office location and phone number.

The key difference between a telecourse and a traditional course is the lack of time spent “face-to-face” with an instructor. Meetings with the telecourse instructor are usually optional and the burden is upon the student to make contact with the instructor if she or he desires it. Much of the communication between students and telecourse instructors is via notes on written work, telephone calls and email. Consequently, the learning environment is such that there is not a great deal of human interaction.

Traditional Students - Traditional students were defined according to a definition adapted from Bean and Metzner (1985). These authors defined traditional students as those who resided on campus, were between the ages of 18 and 24, and attended college full time (p. 488). Since the subjects were taken from a nonresidential community college, the first part of this criteria was excluded. Since it was possible that there would be students who turned 18 years of age during their first year of college, for the purposes of this study, the age bracket for traditional students began with those students who turned 18 by August 8, 1999 (the last day of the last session of the 1998-1999 school year) and end with those students who will remain age 24 by that same date. In other words, these students had birthdays that fall between (and including) the dates of August 9, 1974 and August 8, 1981. Because Tallahassee Community College has a dual enrollment program designed to bring high school students in for college classes, it was possible that some students would fall under the age bracket (age 16 or younger). Since these numbers are very small and the situation of these students unique, these students were not included in the study. Tallahassee Community College considers 12 academic credit hours to be the minimum number of hours a student can take to be considered a full-time student (The Bulletin of Tallahassee Community College, 18). Therefore, traditional students were defined as students who were between the ages of 18 and 24 (within the above brackets) and who were taking 12 academic credit hours or more.

Nontraditional Students - Nontraditional students lacked at least one of the elements of the criteria for a traditional student. In other words, nontraditional students were either older than age 24 (as defined by the above brackets), or were taking 11 credit hours or less, or both.

Successful Completion - For the purposes of this study, successful completion of the telecourses was defined as finishing the course with a grade of "C" or better on a letter grade scale of A-F where "A" was equivalent to excellent and was the highest grade a student could achieve and "F" indicated failure. Although a student may have passed the course with a grade of “D” it is generally acknowledged by educators that to receive a

"D" a student has put forth minimal effort to succeed in the class. The number of students receiving letter grades of "D" was noted in the study.

Completers - The term "completers" referred to those students who finished the course and received a letter grade of "C" or better on a letter grade scale of A-F, where "A" was equivalent to excellent and was the highest grade a student could achieve and "F" indicated failure. Again, although a student may have passed with the letter grade of "D," and these individual results were noted, students receiving a grade of "D" were not considered successful completers (see *successful completion*).

Noncompleters - Students who attended the first and/or second class meeting and did not finish the course with a letter grade of "C"or better on a grading scale of A-F, where "A" was the highest grade and "F" indicated failure, were referred to as "noncompleters."

Retention Rate - The phrase "retention rate" referred to the percentage of students enrolled and attending the first or second class meeting who successfully completed the course. It was interchangeable with "completion rate."

All Telecourse Students - This phrase is used to refer to all 296 students who enrolled in Tallahassee Community College's Fall semester telecourses.

Respondent Group (or "respondents")- This phrase refers only to the 65 students who filled out my initial survey. They are a subset of the 296 telecourse students (see above). These students agreed to be in the study and provided information not obtainable from transcripts. In addition, these students granted me permission to view their final grades.

Research Questions and Hypotheses

The primary question of this study was this: was there a difference in retention rates between traditional and nontraditional students taking the same distance education telecourse? From this primary question, secondary questions emerged. If there was a difference, was one group more successful in these distance education telecourses than the other group? If so, what made one group more successful than the other? If possible, could some intervention strategy promote success in one or both groups?

Before strategies and treatments could be considered, the first step was to address the primary question, which was determining whether there was a difference in retention rates between traditional and nontraditional students taking the same distance education course. To better understand possible differences, other variables were analyzed in an attempt to determine if there were any interaction effects with the key variable of student type that influenced completion rates. These variables included gender, grade point average, prior successful experience with telecourses and the number of hours the student spent working at a job and/or volunteering per week. Because prior research indicated that student-faculty interaction played a significant role in retention, the final part of this study focused on perceptions of faculty.

In this study I attempted to answer seven specific research questions. The first research question was this: was there a difference between the retention rates of traditional and nontraditional students taking the same distance education telecourse? In other words, once the students were classified as either traditional or nontraditional based upon the Bean and Metzner (1985) definition, were differences in retention rates found when the two groups were compared?

The next four questions concerned common demographic variables and the possibility that any one might interact with the main variable of student type. The second question was this: did the independent variable of student gender have an interaction effect with the independent variable of student type (traditional or nontraditional) that influenced completion rates? The third question was this: did the independent variable of student grade point average have an interaction effect with the independent variable of student type (traditional or nontraditional) that influenced completion rates? The fourth question asked: did the independent variable of a student's prior successful experience with telecourses have an interaction effect with the independent variable student type (traditional or nontraditional) that influenced completion rates? The fifth question asked: did the independent variable of the number of hours the student spends working at a job and/or volunteering per week have an interaction effect with the independent variable of student type (traditional or nontraditional) that influenced completion rates?

The remaining questions were answered using the second survey instrument which asked questions about perceptions of faculty contact. The sixth question asked: were there differences in the perceptions of the amount and ease of making faculty contact between traditional and nontraditional students who successfully completed the same distance education telecourse? In distance education telecourses, the amount of concurrent, face-to-face (in the same room at the same time) contact the faculty has with the students is often limited. In the telecourses used for this study, the students might have only seen the faculty at the initial class meeting and/or at the final exam. Did both groups of students perceive this limited amount of faculty contact to be adequate for their needs in these courses? Finally, the seventh and last question asked: did perceptions of the amount and ease of making faculty contact in distance education telecourses differ between completers and noncompleters? There was evidence in the literature that students who did not complete courses tended to cite external causes for drop-out decisions, such as lack of time or poor faculty or tutors, rather than internal causes, such as lack of ability to do the work (Garland, 1993). Did a comparison of completers and noncompleters in these distance education telecourses indicate similar or different perceptions of faculty contact?

Specifically, the following null hypotheses were tested:

H1) There is no difference between traditional and nontraditional students' successful completion rates of the same distance education telecourses.

H2) There are no interaction effects between the independent variables of gender and student type (traditional or nontraditional) that influenced completion rates.

H3) There are no interaction effects between the independent variables of grade point average and student type (traditional or nontraditional) that influenced completion rates.

H4) There are no interaction effects between the independent variables of prior successful experience with telecourses and student type (traditional or nontraditional) that influenced completion rates.

H5) There are no interaction effects between the independent variables of number of hours per week a student works and/or volunteers and student type (traditional or nontraditional) that influenced completion rates.

H6) Of the students who successfully complete, there is no difference between traditional and nontraditional students' perceptions of faculty contact in the same distance education telecourses.

H7) There is no difference between completers' and noncompleters' perceptions of faculty contact in distance education telecourses.

Subjects

There were two sets of subjects for this study. For the first three research questions, all 296 students who registered for telecourses at Tallahassee Community College in Fall semester, 1998 were included. The data were obtained from a review of transcripts from the 296 students.[2] All seven research questions were then applied to the respondent group, a subset of 65 students from the original 296. These 65 students returned initial surveys that included demographic and personal information and gave permission to use that information in the study.

Information for the 296 students was obtained directly from Tallahassee Community College student transcripts. The group included all students who registered for telecourses at Tallahassee Community College in Fall semester of 1998. The subjects in the respondent group were volunteers. In some cases, I was able to attend initial class meetings (when they were held) and hand out and collect the surveys personally. Some instructors did not hold initial meetings and in many cases enrolled students did not attend initial meetings. Students were mailed a survey if they were not given one at an initial class meeting. Because I requested permission from the individual instructors before administering the survey, not all students had the opportunity to fill out the survey. One instructor (with 37 students) declined to participate in the study. The 37 students in that class were not given an opportunity to fill out the two survey instruments, however, they are included in the 296 students used to address the first three research questions.

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[2] Transcripts were anonymous (names and social security numbers were not included).

Before studying the telecourses at TCC, it was established that there was a mix of traditional and nontraditional students taking these classes. The ideal ratio was 50-50, or, in other words, one half traditional, one half nontraditional students. However, since the students chose their courses independently and it was not possible to randomize the groups or control the percentages of each type of student in the courses, it was not possible to guarantee a 50-50 ratio. Prior to the study, data collected from the 1997 Summer, 1997 Fall, and 1998 Spring term telecourses showed that there was a total of 511 students participating in all telecourses. Twenty-four of these were age 17 or younger and were not considered in the data. Of the remaining 487, 194 fit the predetermined definition of traditional students[3] and 263 fit the classification of nontraditional students. Translated into percentages of the 487 usable subjects, 42% were traditional, while 58% were nontraditional. Barring any unforeseen demographic shifts in enrollments, it was reasonable to expect similar percentages for the population that was used for the present study.

Students taking the telecourses were the subjects of this study for the following reasons:

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[3] There is a slight variation from the previously defined age brackets. The 24 students classified as age 17 or younger were not yet 18 at the time they took the course.

1) The telecourses at Tallahassee Community College met the criteria of a distance education course, as described in the introduction of this paper as "education which takes place when the teacher and student are separated by either physical distance and/or time."

2) Telecourses have been in existence for many years (Brown and Brown, 1994, p. 32) and numerous studies have found them to be an effective form of distance education (Biner, Bink, Huffman, and Dean, 1995).

3) Many universities and colleges use telecourses in their distance education programs (Oliver, 1994, p. 167). By using telecourses in the study, the findings are more generalizable to programs in other institutions.

4) According to data collected from students taking telecourses at Tallahassee Community College in the Summer 1997, Fall 1997, and Spring 1998 terms, there was evidence that there was a mix of traditional and nontraditional students taking the telecourses, a prerequisite for this study. The data collected for this study (Fall 1998 telecourse students) also indicated a mix of traditional and nontraditional students.

Procedures

Both instruments for this survey were created by me and approved by the Human Subjects Committee of Florida State University. A copy of the approval notice can be found in appendix IV.

There were 16 telecourses offered concurrently during the Fall 1998 semester at Tallahassee Community College. Prior to the study, permission to administer the surveys was obtained from both administrators and instructors involved in the specific courses to be used in the study. Letters requesting permission to study the courses were sent to the faculty of all telecourses at Tallahassee Community College. The college provided me with a master list of all telecourse students for that semester which included student addresses.

I administered two instruments for this study. First, the initial survey (survey instrument A) asked questions about demographic data and was collected either at the time of the initial class meeting for the telecourses or by mail. Some of the telecourses had an initial class meeting that required student attendance. When it was possible, I attended the initial class meeting to administer and collect the surveys. Instructions were printed on the surveys and students were aware that their participation was voluntary and that responding offered great value to my study but did not affect their grades. In addition, it was emphasized that no personal information would be used in any manner outside the study and strict confidence and student privacy were to be retained throughout the study. Not all telecourses had an initial class meeting and in the cases when there was an initial class meeting, not all students attended. After gathering as many surveys from volunteers as was possible via class meetings, I checked off all of those volunteer respondents from the master list of telecourse students. I then sent letters of request for participation along with survey instrument A (appendix II) and a permission request (appendix I) to all the nonrespondents. Included in the mailing were advertisements offering students a coupon for free food from the college's food court upon receipt of their surveys (appendix VIII). A total of 65 students volunteered to participate in the study.

The demographic data collected using survey instrument A included age, gender, number of academic course hours the student was currently taking, whether the student had a disability, number of hours per week the student worked or volunteered, and number of previous telecourses and traditional courses taken by the student. Although not all of these data were directly related to the study, it presented no additional hardship on the student to provide it nor did it add bias to the study. The reason for collecting the additional information was for its potential value in future research.

After the Fall 1998 semester ended, a second letter was sent to the 65 students who responded to the first survey and agreed to participate in the study. This mailing included survey instrument B (appendix III) and the free food coupon. Several weeks later, a second letter (appendix X) was sent to those original volunteer respondents who had not yet returned the second survey instrument. Survey instrument B was a scaled-response instrument that contained statements concerning faculty contact. There were 10 statements which pertained to two primary constructs: satisfaction with the amount of faculty contact; and satisfaction with the ease of making faculty contact. In order to establish content validity, several experts in education were given the statements in random order and asked to identify the items according to the definitions of the two constructs. The experts were asked to sort the statements into one of four categories: amount of faculty contact; ease of making faculty contact; both; or neither. The instrument was revised several times according to the results and individual feedback from the experts. The revised instrument was used for this study. Written instructions on the survey explained to students that its return was voluntary and that all information they provided would be kept confidential. A total of 44 students (from the original 65 volunteer respondents) returned the second survey (survey instrument B).

Because the number of respondents was low, additional steps were taken to increase the usable data. Anonymous transcripts for the 296 students were obtained from Tallahassee Community College. Although no personal or other identifying information (such as names or social security numbers) was included on the transcripts, usable data such as birth date, number of credit hours taken in Fall semester 1998 (including the telecourse), gender, grade point average and final grade in the telecourse were included. All relevant information was entered into SPSS for Windows.

Using the birth date and the number of credit hours taken during Fall 1998 semester, I designated each of the 296 students as either traditional or nontraditional. Final grades were used to determine if the student had successfully completed the telecourse or not (in accordance to the definition in chapter III). In the case when a student took either two or three telecourses in Fall of 1998 (no student took more than three), a procedure was followed to determine which final grade was used. Successful completion was defined as receiving a final grade of "C" or better (see operational terms, chapter III). If the student received a "C" or better in both courses if she/he took two, or two out of three if she/he took three, then that student was coded as a successful completer. Conversely, two grades (or two out of three) of "D," "F," "withdrawal," or "administrative withdrawal" were coded as noncompletion. In the case of a student taking two courses and successfully completing one but *not* the other (according to the definition) a coin was tossed to determine which course was used for the study. Of the 296 students, 14 were coded according to the coin-toss method.

I compared the completion rates of traditional and nontraditional students using the chi-square and Fisher's Exact tests (null hypothesis one). To determine if there were any interaction effects between gender and student type that affected completion, a two-way analysis of variance (ANOVA) test was done (null hypothesis two). Similarly, using the students who had a grade point average (GPA) greater than zero, a two-way ANOVA was done to determine if GPA interacted with student type to affect completion (null hypothesis three).

These first three tests (chi-square/Fisher's Exact, 2-way ANOVA using gender, and 2-way ANOVA using GPA) were repeated using the 65 respondents (a subset of the original 296).

After receiving survey instrument B from 44 of my original 65 respondents, I matched the initial surveys and follow-up surveys. Using information from the transcripts, students had already been designated as either traditional or nontraditional. Students were coded as completers or noncompleters, depending on their final grades. Of the 44 students who returned the second survey, 31 were defined as completers, 13 were noncompleters. After repeating the first three tests for the respondent group, four additional tests were run. A two-way ANOVA test was used to determine if there was an interaction effect between student type and prior successful experience with telecourses that affected completion rates (null hypothesis 4). Another two-way ANOVA test was used to determine if there was an interaction effect between student type and the number of hours per week a student spent working and/or volunteering that affect completion rates (null hypothesis 5). Using the scores from the scaled-response instrument, Mann-Whitney U and Wilcoxon tests were conducted to compare traditional and nontraditional completers' perceptions of faculty contact (null hypothesis 6). Using scores from the scaled-response instrument the Mann-Whitney U and Wilcoxon tests were repeated to compare completers' and noncompleters' perceptions of faculty contact (null hypothesis 7).

Instruments

There were two instruments employed for this study. The first instrument (survey instrument A, found in appendix II) was a survey that collected demographic data from the students. Information obtained included birth date, gender, number of academic credit course hours the student was currently taking, whether the student had a disability, number of hours per week the student worked or volunteered, and number of previous telecourses and traditional courses the student had taken. Data pertaining to birth date and total number of credit hours taken were verified by using information from enrollment records. These data were used to determine whether the student was traditional or nontraditional according to the definitions already described. Information pertaining to gender, grade point average, prior successful experience with telecourses and number of hours per week spent working and/or volunteering was used to determine if there were any interactions effects between these independent variables and the main independent variable, student type. Additional information may be used at a later time for further research. It was expected to take students no more than ten minutes to complete the survey.

The second instrument (survey instrument B, found in appendix III) was a scaled-response survey. There were two constructs pertaining to students' perceptions of faculty contact in the telecourse and the survey consisted of 10 statements (5 statements for each construct) to which students responded with one of four responses (strongly disagree, disagree, agree, strongly agree). This survey instrument was used to determine differences (if any) between traditional and nontraditional students' perceptions of faculty contact (using only those students who successfully completed the telecourse). It was also used to determine differences (if any) between completers' and noncompleters' perceptions of faculty contact, regardless of student type.

In the summer of 1998, approximately 19 students were administered an informal survey that asked questions about student-faculty interaction (survey can be found in appendix V). The responses on these surveys were used in conjunction with definitions provided by the literature to develop two constructs related to faculty contact. From these constructs, 10 statements were developed, five statements for each construct. The statements were then reviewed by experts in education who sorted each statement according to whether it pertained to one of either of the constructs, both constructs, or neither construct. The instrument was then revised based upon this information.

Using the scaled-response instrument, students were asked to respond to each statement with one of four possible words/phrases: strongly agree, agree, disagree, strongly disagree. It was expected that students would take no more than 10 minutes to complete this survey. The definitions of faculty contact and the two constructs were as follows:

> **Faculty Contact** - any type of interaction the student may have had with the instructor. Examples included telephone calls, face-to-face meetings, informal conversations, email messages, written letters, etc.

Ease of Making Faculty Contact - the accessibility of the instructor, (available during office hours, returning phone calls, etc.), and the clarity and speed of responses to student questions.

Amount of Faculty Contact - how often the student had contact with the instructor, regardless of whether the student or the instructor initiated the contact

Using the instruments, I attempted to answer the research questions as follows:

1) *Was there a difference between the retention rates of traditional and nontraditional students taking the same distance education telecourse?*

Data obtained from the demographic survey were used to answer this question for the 65 respondents (using transcripts the question was also answered for all 296 telecourse students). Specific questions pertaining to the age of the student and the number of credit hours the student was taking determined whether the student was considered to be traditional or nontraditional according to preset definitions listed in the "Operational Terms" section. At the end of the semester, I obtained grade information (with permission) that indicated which students successfully completed the course with a grade of “C” or better and which students dropped out and a simple comparison of proportions was done to determine if there was a significant difference in completion rates between the two groups.

2) *Did the independent variable of student gender have an interaction effect with the independent variable of student type (traditional or nontraditional) that influenced completion rates?*

To answer this question for the 65 respondents, data from the first survey were used. First the initial demographic survey was used to define traditional and nontraditional categories. Second, additional information concerning the gender of each student in both groups was used as an independent variable for use in two-way analysis of variance. This question was also answered for all 296 telecourse students using student transcripts.

3) *Did the independent variable of student grade point average have an interaction effect with the independent variable of student type (traditional or nontraditional) that influenced completion rates?*

To answer this question for the 65 respondents data from the first survey were used. First the initial demographic survey was used to define traditional and nontraditional categories. Second, additional information concerning the grade point average of each student in both groups was used as an independent variable for use in two-way analysis of variance. This question was also answered for all 296 telecourse students using student transcripts.

4) *Did the independent variable of prior successful experience with telecourses have an interaction effect with the independent variable of student type (traditional or nontraditional) that influenced completion rates?*

To answer this question for the 65 respondents, data from survey instrument A were used. First the initial demographic survey was used to define traditional and nontraditional categories. Second, additional information concerning the number of telecourses each student in both groups had taken and passed with at least a "C" was translated as prior success with telecourses and used as an independent variable in two-way analysis of variance.

5) *Did the independent variable of the number of hours the student spent working at a job and/or volunteering per week have an interaction effect with the*

independent variable of student type (traditional or nontraditional) that influenced completion rates?

To answer this question for the 65 respondents, data from survey instrument A were used. First the initial demographic survey was used to define traditional and nontraditional categories. Second, additional information concerning the number of hours each student in both groups either worked or volunteered each week was used as an independent variable for use in analysis of variance.

6) *Were there differences in the perceptions of faculty contact between traditional and nontraditional students who completed the same distance education telecourse?*

Both surveys were used to answer this question. Forty-four students returned the second survey. Of the 44 students who returned the second survey, 38 successfully completed the telecourse. First, the demographic data pertaining to age and number of academic credit hours taken obtained by the first survey were used to divide these 38 students into either traditional or nontraditional student categories. The 10 responses (5 for each construct) on the second survey were compared in an attempt to distinguish differences between traditional and nontraditional completers.

7) *Did perceptions of the amount of and ease of making faculty contact in distance education telecourses differ between completers and noncompleters?*

To answer this question the second scaled-response survey was used. Forty-four students returned the second survey. These students granted me permission to review their final grades in the telecourses at the end of the semester via student records. Using this final grade information, these students were coded to be completers or noncompleters.

Responses were compared to determine whether there were differences between completers and noncompleters.

Validity

According to Tuckman (1994), "The *validity* of a test is the extent to which a test measures what it purports to measure" (p. 182). He discussed four types of test validity: predictive, concurrent, construct and content.

Because the scaled-response survey was created for this study and was not used before, there was no pre-established validity. In order to establish content validity, I took several steps. Definitions from the literature and student responses to an informal survey about student-faculty interaction were used to establish two primary constructs of faculty contact: amount of faculty contact, and ease of making of faculty contact. Five statements for each construct were developed for a total of 10 statements. The statements were printed out in random order. In order to establish validity, various educators including community college instructors, education counselors, Higher Education doctoral students, and professionals holding doctoral degrees in Higher Education were asked to sort the questions according to the construct to which each question is related. Any necessary revisions and/or clarifications were made before the survey was administered to students.

Reliability

Test reliability, according to Tuckman (1994) "means that a test is *consistent*" (p. 180). The Cronbach's alpha measure was used to establish reliability of the scaled response instrument. Each student responded to each statement with one of four answers (strongly disagree, disagree, agree, strongly agree). Each of these answers was assigned a score depending on the nature of the statement. For example, if a statement about the amount of faculty contact was written such that a student satisfied with the amount of faculty contact would respond "strongly agree," then that statement's responses were scored four points for "strongly agree," three points for "agree," 2 points for "disagree," and 1 point for "strongly disagree." Likewise, if another statement had the reverse meaning such that a student who was satisfied with the amount of faculty contact would answer "strongly disagree," then the point system was reversed, assigning four points for a "strongly disagree" response, three points for a "disagree," and so forth. Certain statements were deliberately written to have opposing meanings.

The Cronbach's alpha measure was used to determine internal consistency by testing the homogeneity and the interpretability of the scores. It was used to estimate the reliability that the items on the instrument were internally consistent. On the scaled-response instrument there were five statements pertaining to the construct of amount of faculty contact and five statements pertaining to the construct of ease of making faculty contact. The Cronbach's alpha was determined separately for each set of these statements. The results are listed in chapter IV.

Copies of both the demographic survey and the scaled-response instrument can be found in appendixes II and III respectively.

Treatment of Data

Prior to performing any statistical tests, I used the initial demographic data to split the 65 respondents into two groups. Using information provided by students pertaining to age and number of academic credit hours taken at the same time as the telecourse, subjects were classified as either traditional or nontraditional. Because the respondent group was small, anonymous transcripts were requested from the college for all 296 telecourse students for Fall semester 1998. Using the birth date and total credit hours taken Fall semester 1998, the 296 were also divided into either traditional or nontraditional categories. This variable, student type, was the key independent variable for the study.

Once the two groups were established, tests were run that compared traditional and nontraditional students. First, a test was conducted that compared the two groups to determine if there was a significant difference in completion rates. This test was performed two times: once using all 296 Fall semester 1998 telecourse students; and once using the subset of the 65 respondents.

The purpose of the first test (run on all 296 telecourse students and on the subset of 65 respondents) was to compare completion rates of traditional and nontraditional students. Because the students belonged to one of two exclusive categories, I attempted to find significant differences between two independent proportions using the chi-square and Fisher's Exact tests. A significance level of α=.05 was used.

The student responses from the initial demographic survey were coded for the 65 respondents. Likewise, information from the transcripts of all 296 telecourse students was coded. The gender of each student was coded either a "1" for female, "2" for male, or a "0" for no response. Two-way analysis of variance (ANOVA) was used to determine if there were any interaction effects between the variables of gender and student type that influenced completion rates. The ANOVA tests for gender interaction effects were run two times: once using all 296 Fall semester 1998 telecourse students; and once using the subset of the 65 respondents. A significance level of $\alpha=.05$ was used.

Two-way ANOVA was also used to determine if grade point average (GPA) had an interaction effect with student type that influenced completion rates. GPA was based on a 4.00 scale with 4.00 being the highest average achievable. Those students who had no GPA because this was their first semester were excluded from tests involving that variable. Using the data from the transcripts, two-way ANOVA tests were run two times: once using all 296 Fall semester 1998 telecourse students; and once using the subset of the 65 respondents. A significance level of $\alpha=.05$ was used.

The purpose of performing the two-way ANOVA was two-fold. First, if interaction effects were found, they might provide the basis for clarification of the results and further research. Second, if differences were found in the completion rates between traditional and nontraditional students and no interaction effects were found, it might be possible to generalize the results with greater accuracy. In other words, a lack of interaction effects might indicate that in the case of these other independent variables there were no other factors influencing the overall results.

The next two tests were performed using only the subset of 65 respondents. For the same reasons listed above, two-way ANOVA was used to determine interaction effects (if any) between prior successful experience with telecourses and student type that influenced completion rates of respondents. Two-way ANOVA was also used to determine interaction effects (if any) between the number of hours spent working and/or volunteering each week and student type that influenced completion rates of the respondents.

Originally, the number of telecourses previously taken by students and passed with a "C" or better (successful completion) was going to be kept as a number and not coded. However, since only 20 of 65 respondents had taken and passed any telecourses previous to the one in the study, and of the 20 only 6 had taken and passed more than one telecourse, the variable was changed. Instead of using the actual number of telecourses, the data were put in a dichotomous format with a code of "1" if the student had successfully completed at least one telecourse prior to the one in the study and "2" if the student had not. The number of hours students either worked and/or volunteered each week was coded as follows: a "5" for 40 hours or more; a "4" for 30 to 39 hours; a "3" for 20 to 29 hours; a "2" for 10 to 19 hours; a "1" for 0 to 9 hours; and a "0" for no response.

At the end of the course, via mail, students in the respondent group were asked to fill out a scaled-response instrument (survey instrument B) which measured student perceptions of faculty contact. Of the 65 students in the respondent group, 44 returned the second survey. These 44 students were then matched by name to the initial surveys and designated traditional or nontraditional. Each scaled response on the second survey was assigned a score of 4, 3, 2 or 1, depending on the direction of the statement (see instrument description above) and scores were added for each of the two constructs.

Of the 44 students who returned the second survey, 31 successfully completed the telecourse. Using only the scores from the successful completers, the Wilcoxon test was used for each of the two constructs to determine differences between traditional and nontraditional students' perceptions of faculty contact. In addition, the Mann-Whitney U test was automatically generated by SPSS for Windows. The Mann-Whitney U and the Wilcoxon tests are similar. Both measure the same thing using different scales (analogous to Celsius and Fahrenheit degree measurements of temperature). Both have been presented in chapter IV for the convenience of the reader. A significance level α=.05 was used to determine if there were significant differences.

Using all 44 students who returned the second instrument, a second set of Mann-Whitney U and Wilcoxon tests were run for each construct to compare completers' and noncompleters' perceptions of faculty contact. Again, a significance level α=.05 was used to determine if there were significant differences.

CHAPTER IV

RESULTS

The main purpose of this study was to determine if there was a difference in retention rates between two types of students (traditional and nontraditional) taking the same distance education telecourse. Another key purpose was to more fully understand differences, if any, between traditional and nontraditional students by examining other variables (such as gender, grade point average, prior successful experience with telecourses and the number of hours a student worked or volunteered) to see if they had any interaction effects with the variable of student type that influenced completion rates. The final purpose of this study was to determine if there were differences in perceptions of faculty contact between traditional and nontraditional students, and if there were differences in perceptions of faculty contact between completers and noncompleters. Seven null hypotheses were proposed and tested for this study, yielding varying results.

This chapter will present the results of the statistical procedures. The chapter is divided into five sections. The first section will give a brief demographic description of the students in this study. The second section will summarize the data collection process, including any missing or altered data. The third section will review the results of the reliability tests for the second survey instrument (pertaining to perceptions of faculty contact). The fourth section will cover the data and the statistical tests corresponding to each of the seven hypotheses. The final section will present a summary of the results.

Description of Subjects

In fall semester 1998, there were 296 students enrolled in telecourses at Tallahassee Community College. Of the 296, sixty-five agreed to participate in the study. Table 1 presents general descriptive information for the 296 telecourse students.

Table 1: General Information:
All 296 Distance Education Telecourse Students for Fall Semester 1998

	Traditional Students		Nontraditional Students		
	Female	Male	Female	Male	TOTALS
Completers	30	25	58	24	137
Noncompleters	34	39	50	36	159
TOTALS	64	64	108	60	296

Of the 296 students who enrolled in distance education telecourses at Tallahassee Community College Fall semester 1998, there were 172 females (58%) and 124 males (42%). Of these students 128 or 43% were traditional students (64 female, 64 male) and 168 or 57% were nontraditional (108 female, 60 male). At the end of the semester, 137 students (46%) successfully completed the telecourse (88 female, 49 male) and 159 students (54%) did not successfully complete the telecourse (84 female, 75 male). Of the

296 students enrolled in distance education telecourses, 216 had GPAs greater than zero (students who had zero GPAs have been excluded from tests and descriptions involving GPAs). The mean grade point average (GPA) of these 216 students was 2.27. Traditional students had a mean GPA of 2.05 that was lower than the 2.43 GPA of nontraditional students.

Table 2 presents general descriptive information for the subset of the 65 respondents in the study.

Table 2: General Information: Respondent Group

	Traditional Students		Nontraditional Students		
	Female	Male	Female	Male	TOTALS
Completers	5	5	21	7	38
Noncompleters	5	2	16	4	27
TOTALS	10	7	37	11	65

Of the 65 respondents from the 296 students enrolled in distance education telecourses at Tallahassee Community College Fall semester 1998, 47 were females (72%) and 18 were males (28%). Of these students 17 or 26% were traditional students (10 female, 7 male) and 48 or 74% were nontraditional (37 female, 11 male). At the end of the semester, 38 students (58%) successfully completed the telecourse (26 female, 12 male) and 27 students (42%) did not successfully complete the telecourse (21 female, 6 male). Of the 65 students in the respondent group 45 had GPAs greater than zero (students who had zero GPAs have been excluded from tests and descriptions involving GPAs). The mean GPA for this group of 45 was 2.65. The mean GPA for the traditional students (2.30) was lower than the mean GPA for nontraditional students (2.81). Nontraditional students tended to work and/or volunteer more hours per week than their traditional counterparts (37.34 hours versus 28.29). Twenty students had previously completed at least one telecourse before the one in the study.

Table 3: Survey Information - Respondent Group

	Traditional Students	Nontraditional Students	Overall Respondent Group
Mean GPA	2.30	2.81	2.65
Prior Successful Experience with Telecourses	2	18	20
Mean Number of Hours Spent Working/Volunteering Per Week	28.29	37.34	34.98

In order to determine if the respondent group was representative of all telecourse students some general data comparisons were made using gender and grade point average (GPA). The gender breakdown had the same imbalance for all students (more female than male) as the respondent group although the percentages varied. Of the 296 Fall 1998 telecourse students, 172 were female (58%) and 124 (42%) were male. This compares to 72% female and 28% male for the study's respondent group. Mann-Whitney U and

Wilcoxon tests showed the difference between the respondent group and all telecourse students to be significant at the .05 level (though not at the .01 level). The average GPA[4] for all telecourse students was 2.28 compared to the respondent group's average of 2.58. A t-test for equality of means indicated that this difference was significant at the .05 level. However, the difference is slight and both averages fall in the range of a letter grade of "C" (2.00 to 2.99). In comparison to the overall group of 296 Fall 1998 telecourse students, the students who chose to participate in this study were more likely to be female, nontraditional students with higher GPAs. However, because the study's respondents varied from all 1998 Fall telecourse students at Tallahassee Community College, the generalizability of the results was not as strong as it might have been if the gender mix, student type distribution, and grade point averages had been a closer match between the two groups. Table 4 summarizes the comparison information. Comparison tests between the two groups are in appendix VII.

Table 4: Comparison Information
All 296 Distance Education Telecourse Students and Respondent Group

	All 296 Telecourse Students	Respondent Group (Subset of 65)
# of Females (%)	172 (58%)	47 (72%)
# of Males (%)	124 (42%)	18 (28%)
# of Traditional Students (%)	128 (43%)	17 (26%)
# of Nontraditional Students (%)	168 (57%)	48 (74%)
Average GPA	2.28	2.58

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[4] Included only those students who had GPAs>0

# of Successful Completers (%)	137 (46%)	38 (58%)

Data Collection Summary

There were two phases of data collection. The first phase was to attempt to contact all 296 students enrolled in the Fall 1998 semester telecourses at Tallahassee Community College. Students were either asked to participate at an initial class meeting by me or contacted by mail. However, several of the students enrolled in Fall 1998 telecourses were not contacted for a variety of reasons. Thirty-seven students in one course were not contacted because the instructor chose not to participate in the study. Five students were not included because the college did not have current addresses and consequently they could not be contacted by mail. This left a total of 254 students who were enrolled in Fall 1998 telecourses and who were asked to participate in the study either at the initial class meeting or by mail. Of these 254 students, 65 (approximately 26%) chose to participate in the study.

Because the number of respondents was low, a second phase of data collection was initiated. I requested and received anonymous transcripts of the 296 students enrolled in Fall 1998 telecourses at Tallahassee Community College. A review of these transcripts provided additional data to better answer three of the seven research questions for this study.

The 65 students who filled out the initial demographic survey were asked several weeks later to complete the second instrument concerning perceptions of faculty contact. Of the 65 students, 44 completed and returned the second survey (approximately 68% of the original 65 students).

After the data were collected, three slight changes were made. Question eight on the initial demographic survey asked students to list the total number of telecourses they had previously taken and passed with a grade of "C" or better. Of the 65 students, 46 (close to 71%) had never taken a telecourse before. Of the 20 students who had taken telecourses before, 13 had taken and passed only one course with a "C" or better. Because such an overwhelming number of students had not taken telecourses prior to the fall semester, I decided to treat the data dichotomously rather than as a discrete number. Instead of using the actual number of telecourses students had passed with a "C"or better, each student was coded with the number one (passed at least one telecourse with a grade of "C" or better prior to the fall semester) or with the number two (had not pass at least one telecourse with a grade of "C"or better prior to the fall semester).

A second accommodation of the data was necessary to resolve the problem of no-responses by four students to some of the statements on the second survey. I did not want to eliminate these subjects completely since their responses to the remaining statements were valuable. To account for missing answers, an averaging procedure was followed. Of the ten statements, five pertained to one construct, and five pertained to a different construct. Each answer was assigned a point value of 1, 2, 3 or 4 (see chapter III). When an answer was missing, it was replaced with the *average* of the remaining responses to the statements pertaining to that particular construct. For example, if a student did not respond to a question pertaining to the first construct, but his/her responses to the other four statements relating to that construct averaged a point value of 2.75, then the missing question was assigned a value of 2.75. If a student left more than two statements pertaining to the same construct blank, then I did not include that survey in the results.

After reviewing the data from the second survey, one subject's responses were eliminated in this manner.

The third accommodation of the data concerned the initial grade point average (GPA). Six of the students in the study (four nontraditional, two traditional) did not have an initial grade point average because the semester of this study was their first semester at the college. Because a "0.0" GPA would skew the results, statistical procedures involving GPA did not include those six students. Similarly, when performing statistical tests involving GPA using the data from the 296 transcripts, students with zero GPAs were excluded.

Reliability Tests

Because the second survey instrument (survey instrument B) was created by me and was untested, it was necessary to perform a reliability test. Specifically, the purpose of the reliability test was to confirm that different responses to the survey were a result of the differences in the students, not because of errors in interpretation or confusion caused by the survey itself.

The instrument contained ten statements that were divided into two groups. Each group pertained to one of two constructs (both constructs were explained in chapter III). In order to test the reliability of the instrument, the Cronbach's alpha was determined for each of the two sets of statements. The Cronbach's alpha (as for other reliability coefficients) represents the proportion of differences in responses that can be attributed to the differences in the students taking the survey (Tuckman, 1994). According to Tuckman, a good reliability measurement should be at .75 or higher (pp. 403- 404). For statements 1,4,5,8 and 9, pertaining to the amount of faculty contact, the Cronbach's alpha was .8363. For statements 2,3,6,7, and 10, pertaining to the ease of making faculty contact, the Cronbach's alpha was .8730.

Hypotheses Analysis

There were two parts to the hypotheses analysis. The first part addressed the first three null hypotheses using the data from the 296 transcripts of all students enrolled in distance education telecourses for Fall semester 1998. The second part addressed all seven null hypotheses using only the subset of 65 respondents.

The first null hypothesis stated that there would be no difference between traditional and nontraditional students' successful completion rates of the same distance education telecourses. The transcripts from all 296 students were used to address this null hypothesis. Using the birth date, number of college credit courses each student was taking in the Fall 1998 semester, and final grades, students were coded as either traditional or nontraditional and as completers or noncompleters. To decide whether to accept or reject this hypothesis, a simple comparison of proportions was done using the chi-square and Fisher's Exact tests. The numbers of students in each category are presented in table 5 below.

Table 5: Traditional and Nontraditional Students' Completion Rates
All 296 Distance Education Telecourse Students

	Traditional Students	Nontraditional Students	TOTAL
Completed (with a grade of "C"or better)	55	82	137
Did Not Complete (with a grade of			

Table 5: Traditional and Nontraditional Students' Completion Rates
All 296 Distance Education Telecourse Students

"C"or better)	73	86	159
TOTAL	128	168	296

Using SPSS for Windows, the results of the chi-square test and Fisher's Exact tests are presented in table 6 below.

Table 6: Traditional and Nontraditional Students' Completion Rates (Chi-Square and Fisher's Exact Tests)
All 296 Distance Education Telecourse Students

	Value	df	Asymptomatic Significance (2-sided)	Exact Significance (2-sided)	Exact Significance (1-sided)
Chi-Square	.997[a]	1	.318		
Fisher's Exact Test				.348	.189

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 59.24.

The chi-square value of .997 was not considered significant at the .05 level. The null hypothesis was not rejected. There were no differences found in completion rates between traditional and nontraditional students taking the same distance education telecourse.

The next two null hypotheses were concerned with the interaction effects of student type with other variables. The second null hypothesis stated that there would be no interaction effects between the independent variables of gender and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. In order to test this hypothesis, a two-way analysis of variance (ANOVA) was done using the information from the 296 transcripts. The numbers of completers and noncompleters divided by gender are presented in table 7. The results of the ANOVA are presented in table 8.

Table 7: Completion Numbers Based on Gender
All 296 Distance Education Telecourse Students

	Completed	Did Not Complete	Total
Female	88	84	172
Male	49	75	124
Total	137	159	296

Table 8: Two-Way ANOVA (Interaction Effects Between Gender and Student Type Affecting Completion Rates)
All 296 Distance Education Telecourse Students

Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	1.167[a]	3	.389	1.569	.197
Intercept	673.089	1	673.089	2713.780	.000
Gender	.810	1	.810	3.265	.072
Student Type	.105	1	.105	.425	.515
Gender*Student Type	.0607	1	.0607	.245	.621
Error	72.424	292	.248		
Total	773.000	296			
Corrected Total	73.591	295			

a. R Squared = -.016 (Adjusted R Squared = -.006)

The F value of .245 was not significant at the .05 level and the null hypothesis was not rejected. There were no interaction effects between the variables of gender and student type that influenced completion rates.

The third null hypothesis stated that there would be no interaction effects between the independent variables of grade point average (GPA) and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. To test this hypothesis, using GPA and the variable of student type, a two-way ANOVA was done. Eighty first-semester students were excluded from these tests because they had initial GPAs of 0.0 (see data summary section of this chapter). The results of the ANOVA using GPAs from the remaining 216 students are presented in table 9.

Table 9: Two-Way ANOVA (Interaction Effects Between GPA and Student Type Affecting Completion Rates)
All 296 Distance Education Telecourse Students

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	42.058[a]	156	.270	1.337	.101
Intercept	394.968	1	394.968	1958.244	.000
Student Type	.126	1	.126	.623	.433
GPA	36.278	121	.300	1.486	.045
Student Type*GPA	5.665	34	.167	.826	.723
Error	11.900	59	.202		
Total	549.000	216			
Corrected Total	53.958	215			

a. R Squared = .779 (Adjusted R Squared = .196)

The F value of .826 was not significant at the .05 level and the null hypothesis was not rejected. There were no interaction effects between the variables of GPA and student type that influenced completion rates. However, GPA alone did appear to have a relationship with completion rates (significant at the .05 level). To more fully examine this relationship between GPA and completion, a t-test for equality of means was done to compare the GPAs of completers and noncompleters. The numbers and GPA means are presented in table 10. The t-test results are presented in table 11.

Table 10: GPA Comparison Numbers of Completers and Noncompleters
All 216 Distance Education Telecourse Students with GPAs > 0

	N	Mean GPA	Standard Deviation	Standard Error Mean
Completed w/ a grade of "C" or better	105	2.51	.7019	.0685
Did not complete w/ a grade of "C or better	111	2.04	.6956	.0660

Table 11: T-Test for Equality of GPA Means (Completers, Noncompleters)[a]
All 216 Distance Education Telecourse Students with GPAs > 0

t	df	Sig. (2-tailed)	Mean Difference	Standard Error Difference	95% Conf. Interval of the Difference	
					Lower	Upper
4.941	213.104	.000	.4701	.0951	.2826	.6576

a. Equal variances were not assumed

The t-test for the equality of GPA means indicated significant results at the .05 level. There was the probability of a difference in GPAs between completers and noncompleters.

The remaining four null hypotheses could not be addressed through the use of transcripts alone and thus the two survey instruments were necessary. Despite the small number in the respondent group, the first three null hypotheses were also addressed using this subset (65 of 296 students). Thus the following is a summary of the results addressing all seven hypotheses using only the subset of 65 respondents.

The first null hypothesis stated that there would be no difference between traditional and nontraditional students' successful completion rates of the same distance education telecourses. Using only the 65 respondents, students were designated as either traditional or nontraditional. To decide whether to accept or reject this hypothesis, a simple comparison of proportions was done using the chi-square and Fisher's Exact tests. The numbers of students in each category are presented in table 12 below.

Table 12: Traditional and Nontraditional Students' Completion Rates
Respondent Group

	Traditional Students	Nontraditional Students	TOTAL
Completed (with a grade of "C"or better)	10	28	38
Did Not Complete (with a grade of "C"or better)	7	20	27
TOTAL	17	48	**65**

Using SPSS for Windows, the results of the chi-square test and Fisher's Exact tests are presented in table 13 below.

Table 13: Traditional and Nontraditional Students' Completion Rates (Chi-Square and Fisher's Exact Tests)
Respondent Group

Table 13: Traditional and Nontraditional Students' Completion Rates (Chi-Square and Fisher's Exact Tests)
Respondent Group

	Value	df	Asymptomatic Significance (2-sided)	Exact Significance (2-sided)	Exact Significance (1-sided)
Chi-Square	.001[a]	1	.972		
Fisher's Exact Test				1.000	.602

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.06.

The chi-square value of .001 was not considered significant at the .05 level. The null hypothesis was not rejected. Regarding the respondent group, there were no differences found in completion rates between traditional and nontraditional students taking the same distance education telecourse.

The next two null hypotheses were concerned with the interaction effects of student type with other variables. The second null hypothesis stated that there would be no interaction effects between the independent variables of gender and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. In order to test this hypothesis for the 65 respondents, a two-way analysis of variance (ANOVA) was done using the information from the first survey instrument (verified by the transcripts). The numbers of completers and noncompleters divided by gender are presented in table 14. The results of the ANOVA are presented in table 15.

Table 14: Completion Numbers Based on Gender
Respondent Group

	Completed	Did Not Complete	Total
Female	26	21	47
Male	12	6	18
Total	38	27	65

Table 15: Two-Way ANOVA (Interaction Effects Between Gender and Student Type Affecting Completion Rates)
Respondent Group

Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	.2309[a]	3	.0765	.300	.825
Intercept	86.355	1	86.355	338.645	.000
Gender	.222	1	.222	.871	.354
Student Type	.0003	1	.0003	.001	.973
Gender*Student Type	.0587	1	.0587	.230	.633
Error	15.555	61	.255		
Total	146.000	65			
Corrected Total	15.785	64			

a. R Squared = .015 (Adjusted R Squared = -.034)

The F value of .230 was not significant at the .05 level and the null hypothesis was not rejected. There were no interaction effects between the variables of gender and student type that influenced completion rates of the 65 respondents.

The third null hypothesis stated that there would be no interaction effects between the independent variables of grade point average (GPA) and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. To test this hypothesis for the 65 respondents, using GPA and the variable of student type, a two-way ANOVA was done. Twenty first-semester students were excluded from these tests because they had initial GPAs of 0.0 (see data summary section of this chapter). The results of the ANOVA using GPAs from the remaining 45 students are presented in table 16.

Table 16: Two-Way ANOVA (Interaction Effects Between GPA and Student Type Affecting Completion Rates)
Respondent Group

Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	9.578[a]	40	.239	.958	.603
Intercept	71.9596	1	71.960	287.838	.000
Student Type	9.148	36	.254	1.016	.571
GPA	.0333	1	.0333	.133	.733
Student Type*GPA	.115	3	.03846	.154	.922
Error	1.000	4	.250		
Total	96.000	45			
Corrected Total	10.578	44			

a. R Squared = .905 (Adjusted R Squared = -.040)

The F value of .154 was not significant at the .05 level and the null hypothesis was not rejected. There were no interaction effects between the variables of GPA and student type that influenced completion rates. Unlike earlier results for the same tests run on all 296 telecourse students, there was no indication that GPA alone had a relationship with completion for the 65 respondents.

Hypotheses four and five addressed two other variables that might have had interaction effects with the independent variable of student type that influenced completion rates. These variables were: prior successful experience with telecourses; and the number of hours students worked and/or volunteered each week. The information for these variables was collected from the first survey instrument (survey instrument A).

The fourth hypothesis stated that there would be no interactions effects between the independent variables of prior telecourse success (altered slightly from the original hypothesis, as explained in the Data Analysis section in this chapter) and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. To test this hypothesis, a two-way ANOVA was done. The numbers of completers and noncompleters divided by prior telecourse experience are presented in table 17 The results of the ANOVA are presented in table 18.

Table 17: Completion Numbers Based on Prior Experience with Telecourses
Respondent Group

	Completed	Did Not Complete	Total
Students previously completing telecourses	14	6	20
Students **not** previously completing telecourses	24	21	45
Total	38	27	65

Table 18: 2-Way ANOVA (Interaction Effects Between Prior Experience with Telecourses and Student Type Affecting Completion Rates) Respondent Group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.574[a]	3	.191	.767	.517
Intercept	49.175	1	49.175	197.204	.000
Telecourse Experience	.02279	1	.02279	.091	.763
Student Type	.02279	1	.02279	.091	.763
Telecourse Exp.*Student Type	.158	1	.158	.635	.429
Error	15.211	61	.249		
Total	146.000	65			
Corrected Total	15.785	64			

a. R Squared = .036 (Adjusted R Squared = -.011)

The F value of .635 was not significant at the .05 level and the null hypothesis was not rejected. There were no interaction effects between the variables of prior experience with telecourses and student type that influenced completion rates. However, the numbers indicated that students who had prior success with a distance education telecourse completed the study's telecourse at a rate of 70% while students who had no prior success completed the study's telecourse at a rate of 53%. In order to determine if these differences were significant, the chi-square and Fisher's Exact tests were done. The results of these tests are listed in table 19 below.

Table 19: Chi-Square and Fisher's Exact Tests-Prior Success With a Telecourse(s) Respondent Group

	Value	df	Asymptomatic Significance (2-sided)	Exact Significance (2-sided)	Exact Significance (1-sided)
Chi-Square	1.584[a]	1	.208		

Table 19: Chi-Square and Fisher's Exact Tests-Prior Success With a Telecourse(s) Respondent Group

Fisher's Exact Test				.278	.162

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.31.

The chi-square value of 1.584 was not considered significant at the .05 level. There appeared to be no significant difference in completion rates between those students who had prior success with distance education telecourses and those who did not.

The fifth null hypothesis stated that there would be no interaction effects between the independent variables of the number of hours per week a student worked and/or volunteered and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. To test this hypothesis, a two-way ANOVA was done using the variables of working/volunteer hours (divided into ranks) and student type. The numbers of completers and noncompleters divided by working/volunteering hours rank are presented in table 20. The results of the ANOVA are presented in table 21.

Table 20: Completion Numbers Based on Work/Volunteer Hours Rank Respondent Group

Work/Volunteer Hrs. (divided by rank)	Completed	Did Not Complete	Total
40 or more	21	15	36
30-39	6	7	13
20-29	5	3	8

Table 20: Completion Numbers Based on Work/Volunteer Hours Rank Respondent Group

10-19	1	1	2
0-9	5	1	6
Total	38	27	65

Table 21: 2-Way ANOVA (Interaction Effects Between Hours Worked/Volunteered and Student Type Affecting Completion Rates) Respondent Group

Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	1.183[a]	9	.131	.495	.872
Intercept	42.388	1	42.388	159.660	.000
Student Type	.286	1	.286	1.077	.304
Hrs. Wk/Vol. (rank)	.583	4	.146	.549	.700
Student Type*Hrs. Wk/Vol. (rank)	.530	4	.133	.499	.736
Error	14.602	55	.265		
Total	146.000	65			
Corrected Total	15.785	64			

a. R Squared = .075 (Adjusted R Squared = -.076)

The F value of .499 was not significant at the .05 level. There were no interaction effects between the variables of working/volunteering hours and student type that influenced completion rates. The null hypothesis was not rejected.

The sixth null hypothesis stated that of the successful completers, there would be no difference between traditional and nontraditional students' perceptions of faculty contact in the same distance education telecourses. To test this hypothesis, using scores from the second survey instrument, a comparison was made of traditional and nontraditional students. Thirty-eight of the respondents successfully completed the telecourses with a grade of "C" or better. Of theses completers, 31 returned the second survey (82% of the 38). There were two constructs on the second survey: amount of faculty contact; and ease of making faculty contact. One student was eliminated from the test of the second construct because of missing responses (thus there will only be 30 survey scores used for the tests involving the construct "ease of making faculty contact"). Using SPSS, the Mann-Whitney U and the Wilcoxon tests were performed for each construct. The results for the tests pertaining to the construct of "amount of faculty contact" are presented in table 22.

Table 22: Traditional and Nontraditional Students: Mann-Whitney U and Wilcoxon Tests[b] (Amount of Faculty Contact)
Respondent Group

	Survey Score
Mann-Whitney U	66.000
Wilcoxon W	102.000
z	-1.190
Asymptomatic Significance (2-tailed)	.234
Exact Significance [2*(1-tailed significance)]	.255[a]

a. Not corrected for ties.
b. Grouping variable: student type

The asymptomatic significance value of .234 for the first construct (amount of faculty contact) indicated that the z score of -1.190 was not significant at the .05 level. The null hypothesis was not rejected for "amount of faculty contact." Of the successful completers, there were no differences in perceptions of the amount of faculty contact found between traditional and nontraditional students.

The Mann-Whitney U and Wilcoxon tests were repeated for the second construct on the survey, "ease of making faculty contact." The results are presented in table 23.

Table 23: Traditional and Nontraditional Students: Mann-Whitney U and Wilcoxon Tests[b] (Ease of Making Faculty Contact)
Respondent Group

	Survey Score
Mann-Whitney U	64.000
Wilcoxon W	100.000
z	-1.149
Asymptomatic Significance (2-tailed)	.251
Exact Significance [2*(1-tailed significance)]	.277[a]

a. Not corrected for ties.
b. Grouping variable: student type

Similar to the first construct, the asymptomatic significance value of .251 for the second construct (ease of making faculty contact) indicated that the z score of -1.149 was not significant at the .05 level. The null hypothesis was not rejected for "ease of making faculty contact." Of the successful completers, there were no differences in perceptions of ease of making faculty contact found between traditional and nontraditional students.

The seventh and final null hypothesis stated that there would be no difference between completers' and noncompleters' perceptions of faculty contact in distance education telecourses. All 44 students who responded to the second survey were included in these tests for the first construct. As stated previously, one student was eliminated from the tests on the second construct because of incomplete answers (thus there were only 43 respondents used). Similar to the tests for the sixth hypothesis, scores from the second survey were used for each construct and both the Mann-Whitney U and the Wilcoxon tests were performed. The results of these tests pertaining to the first construct, "amount of faculty contact" are presented in table 24.

Table 24: Completers and Noncompleters: Mann-Whitney U and Wilcoxon Tests[a]
(Amount of Faculty Contact)
Respondent Group

	Survey Score
Mann-Whitney U	129.000
Wilcoxon W	220.000
z	-1.887
Asymptomatic Significance (2-tailed)	.059

a. Grouping Variable: completers/noncompleters.

The asymptomatic significance value of .059 for the first construct (amount of faculty contact) indicated that the z score of -1.887 was not significant at the .05 level. The null hypothesis was not rejected for this construct. There was no difference in completers' and noncompleters' perceptions of the amount of faculty contact received in these distance education telecourses.

The Mann-Whitney U and Wilcoxon tests were repeated for the second construct, "ease of making faculty contact" and the results are presented in table 25.

Table 25: Completers and Noncompleters: Mann-Whitney U and Wilcoxon Tests[a] (Ease of Making Faculty Contact) Respondent Group	
	Survey Score
Mann-Whitney U	140.000
Wilcoxon W	231.000
z	-1.472
Asymptomatic Significance (2-tailed)	.141
Exact Significance [2*(1-tailed sig.)]	.151[b]

a. Grouping Variable: completers/noncompleters
b. Not corrected for ties

The asymptomatic significance value of .141 for the second construct (ease of making faculty contact) indicated that the z score of -1.472 was not significant at the .05 level and the null hypothesis was not rejected for this construct. There was no difference in completers' and noncompleters' perceptions of the amount of faculty contact received in these distance education telecourses.

Summary of Results

According to the statistical tests performed in this section, there were no differences in completion rates between traditional and nontraditional students. This result was consistent when running tests with all 296 telecourse students and with the 65 respondents.

There were no interaction effects between student type and gender that influenced completion rates. This held true for all 296 telecourse students as well as the 65 respondents. There were no interaction effects between student type and GPA that influenced completion rates. However, taken alone, GPA was found to be significantly related to completion for the 296 telecourse students. This same result was not found with the 65 respondents. Using data available for only the 65 respondents, it was found that past success with distance education telecourses did not have an interaction effect with student type that influenced completion rates. However, the numbers indicated that 70% of the students who had previously completed a telecourse with a grade of "C" or better, completed the study's telecourse, while only about 53% of those students who had not previously completed a telecourse with a grade of "C" or better, completed the telecourse for the study. Further testing indicated that this difference was not significant. The number of hours students spent working and/or volunteering did not appear to have any interaction effects with student type that influenced completion for the 65 respondents.

Using data available for only the 38 respondents who returned the second survey and who successfully completed the telecourse, it was found that there were no differences between traditional and nontraditional students' perceptions of the amount of or ease of making faculty contact. Using all 44 respondents who returned the second survey, there were no differences found in perceptions of amount of or ease of making faculty contact between completers and noncompleters.

CHAPTER V

CONCLUSION

Retention research in distance education has been an evolutionary process. Early studies attempted to identify student or environmental characteristics that appeared to cause drop-out from institutions. In the early 1970s, the research shifted to an integrative approach, focusing on exactly what "drop-out" was (and was not) and why some students persisted and others did not (Astin, 1975; Spady, 1972; Tinto, 1975). This early research was concerned with drop-out of traditional students, that is, students who were recently out of high school, taking a full load of courses, and usually living on or near campus.

During the 1980s, the college student population became more diverse including growing numbers of older, part-time students. Known as nontraditional or "commuter" students (a reference to off-campus living arrangements), these students often did not have the same needs or goals as the traditional students. Researchers recognized this unique group and began to study drop-out factors related specifically to nontraditional students (Boshier, 1973; Bean and Metzner, 1985).

Distance education has had a long history in the United States, especially serving geographic areas that had little access to traditional educational opportunities. During the 1990s advances in technology (specifically the increased use of personal computers and the Internet) helped to push distance education into the spotlight. Rather than being the course of last resort, distance education was viewed as an easy and economical method to reach more students, despite their distance from the campus (Pascarella & Terenzini, 1998).

Because the numbers of students enrolling in distance education were increasing, new retention research found a niche, focusing particularly on these students. Researchers began by building on the works of Spady and Tinto, who studied traditional student drop-out. They then infused traditional retention models with factors unique to nontraditional students (Kember, 1989).

Because of the increasing variety, availability, and convenience of distance education, both traditional and nontraditional students have been taking advantage of these courses. Recently, it was found that although many institutions created distance education programs to reach nontraditional populations, the actual students in these classes were made of both types of students, traditional and nontraditional (Guernsey, 1998). Possible problems might not have been anticipated due to the design of these courses aimed solely at nontraditional students. Based on the relatively new idea of a mixed population in distance education courses, I based my research on a comparison of the two types of student with the learning environment held constant.

The primary purpose of this study was to determine if there was a difference in retention rates between two types of students (traditional and nontraditional) taking the same distance education telecourse. Another key purpose was to more fully understand differences, if any, between traditional and nontraditional students by examining other variables to see if they had any interaction effects with the variable of student type that influenced completion rates. These additional variables included gender, grade point average, prior success in completing a distance education telecourse and the number of hours a student worked or volunteered. The final purpose was to determine if there were differences in perceptions of faculty contact between traditional and nontraditional students, and if there were differences in perceptions of faculty contact between completers and noncompleters. There were seven null hypotheses proposed and tested for this study, yielding varying results.

Summary of Results

All community college students who registered for distance education telecourses at Tallahassee Community College (TCC) in Tallahassee, Florida for Fall semester 1998, were asked to participate in this study. Of the 296 students enrolled in telecourses that semester, sixty-five agreed to participate in the study. These 65 students filled out the initial demographic survey. Several weeks later these same students were asked to complete the second instrument concerning perceptions of faculty contact. Of the 65 students, 44 completed and returned the second survey (approximately 68% of the original 65 students). Because the number of respondents was low, anonymous transcripts for all 296 students were requested from the college in order to obtain a larger amount of usable data for some of the research questions. Thus there were two subject groups for this study: all 296 telecourse students for Fall semester 1998; and the subset of 65 respondents (referred to as "respondent group").

After the administration and return of the second instrument, I collected the data and matched the initial surveys and follow-up surveys and assigned an identification number to each student. Using the demographic information from the first survey, I divided students into two groups, traditional and nontraditional students. At the end of the semester, final grades for the 65 respondents were matched with the two surveys. All data were entered into the SPSS for Windows computer program using the assigned student numbers. At the conclusion of the data entry process, any identifying information for the students (name, birth date, etc.) was destroyed.

Because of the low number of respondents, transcripts from the college for all 296 students were requested and received. There was no identifying information on these transcripts. There was basic descriptive information such as birth date, gender, total number of college credit hours taken in Fall semester 1998, and final grade in the telecourse. This information allowed me to divide students into traditional and nontraditional students and to designate each student as either a completer or noncompleter.

Using the demographic information, statistical tests were done to compare the two types of students (traditional and nontraditional) and to test for interaction effects of other variables with the key independent variable, student type. Statistical tests were also done to compare perceptions of faculty contact between traditional and nontraditional students and between completers and noncompleters.

Research Question One

Do traditional and nontraditional students in the same distance education telecourses successfully complete the course at the same rate? The chi-square and Fisher's Exact tests were used to answer this question, yielding no significant results. There were no differences found in completion rates between traditional and nontraditional students.

Research Question Two

Are there any interaction effects between the variables of gender and student type that influenced completion rates? Two-way analysis of variance (ANOVA) was used to answer this question yielding no significant results. There were no interaction effects between student type (traditional or nontraditional) and gender that influenced completion rates. These results were the same for all 296 telecourse students and for the 65 respondents.

Research Question Three

Are there any interaction effects between the variables of grade point average (GPA) and student type that influenced completion rates? Two-way ANOVA was used to answer this question yielding no significant results. There were no interaction effects between student type (traditional or nontraditional) and GPA that influenced completion rates. These results were the same for all 296 telecourse students and for the 65 respondents. However, it was found that GPA alone did appear to have a positive relationship with completion rates for the group consisting of all 296 telecourse students.

Research Question Four

Are there any interaction effects between the variables of prior success with distance education telecourses and student type that influenced completion rates? Two-way ANOVA was used to answer this question for the 65 respondents only, yielding no significant results. There were no interaction effects between student type (traditional or nontraditional) and the number of distance education telecourses previously taken and passed with a "C" grade or better that influenced completion rates.

Research Question Five

Are there any interaction effects between the variables of the number of hours a student works and/or volunteers and student type that influenced completion rates? Two-way ANOVA was used to answer this question for the 65 respondents yielding no significant results. There were no interaction effects between student type (traditional or nontraditional) and the number of hours a student spent working and/or volunteering that influenced completion rates.

Research Question Six

Will traditional and nontraditional students who take and successfully complete the same distance education telecourses perceive the amount and ease of making faculty contact in a different manner? The Mann-Whitney U and Wilcoxon tests were used for each of the two constructs to answer this question for the 65 respondents, yielding no significant results. There were no differences in perceptions of the amount of and ease of making faculty contact between traditional and nontraditional students taking and completing the same distance education telecourses.

Research Question Seven

Will completers and noncompleters differ in their perceptions of the amount of and ease of making faculty contact? Again, the Mann-Whitney U and Wilcoxon tests were used for each construct to answer this question. There were no differences in perceptions of the amount of and ease of making faculty contact between found between completers and noncompleters.

Additional Findings

Additional tests were done to examine relationships that were not anticipated at the beginning of the study. The two-way ANOVA done to determine interaction effects between GPA and student type did not yield any significant results. However, for the group of all 296 telecourse students, the test did indicate a relationship between GPA and completion. A t-test indicated that completers had higher GPAs than noncompleters (significant at the .05 level) in the group of all 296 telecourse students.

After the data were collected and completion or noncompletion was determined, another interesting result was found. The numbers indicated that 70% of the students who had previously passed at least one distance education telecourse successfully, completed the telecourse for the study. Only 53% of the students who had no prior experience with distance education telecourses successfully completed the telecourse for this study. Additional testing did not indicate that this difference was significant.

Validity of Findings

This study, as with every study, was subject to elements that might have influenced the validity of the findings. In particular, there were two outcomes (dependent variables) examined in this study: successful completion (or noncompletion); and perceptions of faculty contact as indicated by scores on the second survey instrument. This section reviews possible threats to the external and internal validity pertaining to both outcomes.

External Validity

The external validity of this study was concerned with the degree to which the findings could be applied to other situations (or with other subjects). A high degree of external validity (or generalizability) would mean that the results would more adequately apply to the general population (Tuckman, 1994).

Those findings in the study that pertain to the 65 respondents are limited in generalizability because of the small number of subjects. As was mentioned in the previous chapter, there were slight significant differences in gender mix and grade point averages between the study's respondent group and the group of all 296 telecourse students for Fall semester, 1998. A closer match between the two groups would have increased the generalizability of these results.

Compounding this potential bias was the fact that the subjects came from one community college in one geographic area. The findings may not be applicable to students in more rural or more urban areas for example. Being in close proximity to two major universities to where many of its students transferred, it could be argued that Tallahassee Community College was not a representative community college for either the state of Florida or the country.

Because the subjects for the respondent group were volunteers and not randomly selected, there was the possibility of self-selection bias. For example, the subjects may have been different from the general population because they were prone to volunteer for studies.

Another factor influencing external validity for the respondent group was self-report bias. It was possible that some of the information from the students was reported incorrectly. In addition, students volunteered and were completely aware that they were contributing to a study. It is possible that students, knowing that they were participating in a research study, might have worked harder at the telecourse (thus increasing completion rates).

Internal Validity

Internal validity refers to the certainty that the findings of a study occurred because of what the researcher hypothesized, and not for other reasons (Tuckman, 1994). There were several elements in this study that might have affected internal validity.

One threat to internal validity for the respondent group was related to expectations of the subjects. Subjects might have deduced what was expected in the study and altered their responses based upon what they believed the researcher wanted to hear. This was of particular concern with regard to the second survey instrument. It was possible that certain responses on the second instrument concerning perceptions of faculty contact were biased because the students knew they were being recorded.

Another threat to internal validity for both the respondent group and the group of all 296 telecourse students was history. A study that involves an experimental treatment usually has a control group and a treatment group with the goal being that both groups have identical experiences (histories) except for the treatment. In this study the comparison of traditional and nontraditional students involved two groups that were, by definition, different. It is possible that if differences were found between these two groups in completion rates and in perceptions of faculty contact it would be because of other experiences related to their group status and not simply because they were traditional or nontraditional. The comparison of completers' and noncompleters' perceptions of faculty contact in the respondent group may also be subject to history-related bias. In particular, since the two groups had different outcomes with the telecourses (one positive, one negative) it is possible that these different outcomes directly affected how each of these groups responded to the second survey instrument.

Finally, another threat to the internal validity of the study was specific to the respondent group and the second survey instrument. Of the 65 students who originally agreed to participate in the study, 44 returned the second survey (68%). Of these 44, only 38 successfully completed the telecourse. Thus, when comparing traditional and nontraditional completers, only 38 students' responses were used while 27 students' responses were not included. Likewise, when comparing the completers and noncompleters there were only 44 responses, leaving 21 students who did not have their responses included.

Discussion of Results

The primary research question I asked was whether there were differences in retention rates between two types of students (traditional and nontraditional) taking the same distance education telecourse. For my second key research question I asked if there were any interaction effects between student type and other variables that influenced completion rates. For my final question I asked if there were differences in perceptions of faculty contact between traditional and nontraditional students, and if there were differences in perceptions of faculty contact between completers and noncompleters. Specifically, the two dependent variables primary to this study were completion (or noncompletion) and perceptions of faculty contact.

Completion

The first null hypothesis stated that there would be no difference between traditional and nontraditional students' successful completion rates of the same distance education telecourse. The chi-square and the Fisher's Exact test were performed for all telecourse students and for the respondent group. The chi-square value was not considered significant at the .05 level in either case. Thus, this null hypothesis was not rejected and it was determined that there were no differences between the two groups' completion rates.

Because past research has clearly delineated these two types of students, it was expected that there would be differences in completion rates. In particular, the research has emphasized the importance of student integration (both academic and social) to institutional persistence, an element not easily achieved by part-time students (Bean and Metzner, 1985; Kember, 1989; Spady, 1971; Terenzini & Pascarella, 1976; Tinto, 1987). The distance element of the telecourses in this study presented an even more difficult obstacle to integration because students might have little or no contact with faculty or other students. Thus the expectation was that part-time, nontraditional students, having little contact with the campus elements of Tallahassee Community College and less of an opportunity to become integrated with the school environment, would probably have a lower completion rate.

There were two possible explanations for these results. First, it was possible that the integration element was negligible in these telecourses. Although traditional students might spend more time on campus, in these particular telecourses, the amount of student-faculty and student-student contact was the same for both student types. Thus it was possible that any effect the lack of student integration might have on completion was negated.

The second possible explanation was that student integration was a factor promoting completion for the traditional students, but nontraditional students had off-setting (or compensating) factors that lessened the differences in completion rates between the two groups. For example, referring to the impact of age on institutional drop-out, Lenning (1982) wrote that older students' academic weaknesses were "compensated by tendencies to be more highly motivated, more mature, and more traditional in their values" (p. 36). The older students in this study might have had goal-related reasons for overcoming the problems associated with a lack of student integration.

In addition to a straight comparison of completion rates between traditional and nontraditional students, four other variables were examined for possible interaction effects: gender; grade point average; prior successful experience with telecourses; and number of hours students worked and/or volunteered. The second null hypothesis stated that there would be no interaction effects between the independent variables of gender and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. A two-way analysis of variance (ANOVA) run for all 296 telecourse students and for the respondent group revealed no significant link between gender and student success in either case. The null hypothesis was not rejected.

These results were not entirely unexpected. Dille and Mezack (1991) found no significant link between gender and completion of a telecourse. Other researchers (Astin, Spady, Tinto) found that although different factors influenced drop-out decisions for men and women, gender alone was not a major determinant of retention. In addition, it was necessary to consider the differences these authors found in the context of the time period during which their data were collected. The social and demographic changes that influenced the impact of gender on course success were discussed in chapter II.

The third null hypothesis stated that there would be no interaction effects between the independent variables of grade point average (GPA) and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. Again a two-way ANOVA was run for all 296 telecourse students and for the respondent group. The ANOVA indicated that there were no significant interaction effects between GPA and student type. However, in the case of the 296 telecourse students, GPA taken alone did appear to have a significant relationship with the dependent variable of completion/noncompletion (significant at the .05 level). A t-test for equality of means was done to compare the mean GPAs of the completers and noncompleters in the group of all 296 telecourse students. There were significant results at the .05 level that indicated that GPA was positively related to completion. The same results were not evident in the respondent group.

Although there was not a great deal of research focusing on the connection between GPA and retention in a specific course, the link between GPA and retention on a system-wide basis has been studied extensively. In their study of nontraditional student attrition, Metzner and Bean (1987) found a positive relationship between retention and high school GPA. In his study of drop-out decisions, Spady (1971) found a strong link between grade performance and the decision to remain in college by male students at the University of Chicago. Tinto (1975) argued that grade performance, along with intellectual development, was important to the academic integration of a student necessary for persistence. However, Tinto, and other researchers (Boshier, 1973; Spady, 1971) believed that taken as a single variable, academic performance was not a good predictor of persistence in college. Tinto noted that "... knowing, for instance, to what degree an individual's measured ability and social status relate to the probability of his leaving college does not mean knowing how these attributes affect the process of dropping out from college." (p. 90). In other words, even if a correlation between GPA and retention was identified, there remained the problems of why it existed and how it could be used to increase retention.

The fourth null hypothesis stated that there would be no interaction effects between the independent variables of prior successful experience with telecourses and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. Considering this null hypothesis required more information than what was provided on the transcripts and consequently only the respondent group was used. Because of the low number of respondents, the results are only applicable to the 65 respondents. Originally the actual number of telecourses successfully completed was to be left as a number. However, since so few students in the respondent group had taken a telecourse prior to the one in the study, the variable was instead changed to a dichotomous form with students assigned a "1" if they had successfully completed a telecourse before (regardless of the number) and a "2" if they had not. The intention was to determine if successful experience with the distance format of telecourse influenced completion rates.

There is not a great deal of research specifically connecting past distance education experience with current (or future) course completion. If college experience in general is used as a parallel to distance education experience, the research did find more institutional drop-out occurring in the beginning of the college career rather than the end, when students would have been more experienced (Pascarella & Terenzini, 1980). Towles et al. (1993) found that faculty contact appeared to have more of an impact on freshmen telecourse students than on upperclassmen, but it was unclear if that was due to experience or maturity (or perhaps other factors). In relation to the telecourses in this study, it was expected that the more experience students had with the course format, the more likely they would have been to successfully complete the course. The idea was that repeated experience led to familiarity with materials, technology, and procedures, and consequently the experienced students would have an advantage in studying and achieving success in the course. In addition, students who had prior success in these courses knew how to achieve in a distance education course and were willing to take another course in the same format, whereas students new to telecourses were "untried" and might or might not succeed. Dille and Mezack (1991) had similar expectations of the telecourse students in their study. Comparing the two groups they found that the students who successfully completed the study's telecourse had acquired an average of 42.22 college credit hours compared to 23.07 college credit hours acquired by the students who did not successfully complete the study's telecourse. The authors theorized that "[s]tudents who completed many college credit hours would have had more opportunity to develop those academic and personal skills necessary for academic success in college: better study habits, greater perseverance, better time management, greater self-confidence in their academic abilities and, perhaps, a greater willingness to seek help when not doing well academically" (p. 32).

Despite the expectations, 2-way ANOVA using the variables of prior successful experience with telecourses and student type, indicated no significant results at the .05 level and the null hypothesis was not rejected. However, because it appeared that those students in the respondent group with prior successful telecourse experience completed the study's telecourse at a higher rate (than those students without prior successful experience), I ran a chi-square test and a Fisher's Exact test. The results were not statistically significant.

There were several possible explanations for these results. The first could have been the small size of the respondent group. In addition to the small size of the respondent group was the small number of students who actually had any experience with the courses (twenty). A larger respondent group might have yielded different results. A second explanation was that experience was not a determining factor in telecourse success. Earlier telecourses might have differed in content, teacher, etc., from the telecourses taken during the study. Consequently the first telecourse did not prepare the student for the second. Other external factors such as concurrent personal events in the student's life might have influenced success only in the earlier course or only in the later course. Finally, it was possible that success in the telecourse was more strongly related to quality of the student rather than past experience, again drawing on the concept that a "good" student would fare better in a course regardless of format.

The fifth null hypothesis stated that there would be no interaction effects between the independent variables of number of hours per week students spent working and/or volunteering and student type (traditional or nontraditional) that would influence the dependent variable of completion/noncompletion. Again, only the respondent group was considered for testing this null hypothesis making the results only applicable to those 65 students. One expectation was that the more students worked and/or volunteered, the less time they would have spent on studies, and consequently this might have had a negative effect on completions rates (Brindley, 1987; Kember, 1989). However, the results of the 2-way ANOVA were not considered significant at the .05 level and the null hypothesis was not rejected.

Although these results were contrary to the idea that having more time to study would have led to higher completion rates, the literature supported a counter-argument based on student time management. Metzner and Bean (1985) found that grade point average had "the largest effect on dropout" but that "external matters such as hours of employment, family responsibilities, or on-campus social activities did not affect grades. Rather, academic performance seems to be a function of academic preparation and motivational factors such as desired level of education and class attendance" (pp. 26-27). Through student interviews, Garland (1993) found that despite the same number of outside commitments (including work), some students persisted in distance education courses while others did not. She noted that the difference was "persisters eventually put study ahead of other commitments while withdrawals did not" (p. 190).

Perceptions of Faculty Contact

There were two comparisons done in relation to the dependent variable of perceptions of faculty contact. First, a comparison was done between traditional and nontraditional students who successfully completed to determine if there were any differences in perceptions of faculty contact (using the two constructs). Second, a similar comparison was done between successful completers and noncompleters. Because the second survey provided the necessary information for these tests, only those students in the respondent group who returned the second survey could be considered. There were only 44 students (of the original 65 respondents) who returned the second survey. Of the 44, only 38 successfully completed the course and it is only the responses of those 38 that were used to test the sixth null hypothesis. The responses for all 44 students who returned the second survey were used to test the seventh null hypothesis. Because of the low numbers in both cases, any conclusions or results are strictly applicable to only these students.

The sixth null hypothesis stated that of the successful completers, there would be no difference between traditional and nontraditional students' perceptions of faculty contact in the same distance education telecourses. There were two constructs tested: amount of faculty contact; and ease of making faculty contact. It was expected that traditional students, particularly those who recently matriculated from traditional high schools, would be accustomed to receiving instruction from a professor or instructor in the classroom (face-to-face), and would rate the "hands-off" approach of instruction lower for both constructs than the nontraditional students. However, considering the 38 completers in the respondent group who returned the second survey, the completion of the Mann-Whitney U and Wilcoxon tests indicated no significant difference between the two types of students (traditional or nontraditional) for either construct.

Although these results were not expected, they were not extraordinary. For this part of the study, only the completers were surveyed, or in other words, those students who received at least a "C" grade in the telecourse. It could have been that students who succeeded in general were more likely to be satisfied with the amount and ease of making faculty contact (see null hypothesis seven for a comparison of completers and noncompleters). Even more important, students completed the survey *after* the course was finished and might have forgotten or disregarded any problems they had during the course. Towles et al. (1993) encountered a similar situation when surveying students on telecourse satisfaction. The authors reviewed several surveys that indicated high satisfaction with the course with little variation in students' responses. Upon further investigation, they found that the surveys were returned only after the final exam (or paper) was completed. Thus the results were skewed positively because only completers were returning the surveys. Further research in this area might include on-going or concurrent surveying of students during the course.

The second comparison using perceptions of faculty contact as a dependent variable was between completers and noncompleters of the respondent group (who returned the second survey). The seventh null hypothesis in the study stated that there would be no difference between completers and noncompleters' perceptions of faculty contact in distance education telecourses. Considering the 44 respondents who returned the second survey, the completion of the Mann-Whitney U and Wilcoxon tests indicated no significant difference between completers and noncompleters for either construct.

It was expected that there would be significant differences between completers' and noncompleters' perceptions of faculty contact. Specifically, it was expected that noncompleters would view the lack of student-faculty interaction more negatively than the completers because, logically, those students who completed with at least a "C" grade would generally be more satisfied with the overall course, including the quality and quantity of faculty contact. Garland (1993) found that those students who did not do well in courses tended to look for external reasons for failure. One obvious source was the faculty, regardless of other root causes of noncompletion. Lenning (1982) also noted that students who experienced institutional drop-out self-reported causes that protected their egos. Thus, I expected that students who did not complete the course would respond more negatively to perceptions of faculty contact, although the reasons for drop-out (or nonsuccess) might have been more accurately attributed to student ability or effort.

Conclusions and Implications for Practice

With respect to successful completion the results of this study indicated that there was no significant difference between traditional and nontraditional students taking the same distance education telecourses. The type of student was not an important factor in determining success in these courses.

If student type was not a determining factor in the successful completion of distance education telecourses, then what was? In the group of all 296 telecourse students it appeared that the strongest relationship was the positive relationship of grade point average (GPA) and successful completion. As a group, students who completed the study's telecourse with a grade of "C" or better had significantly higher GPAs. This appears to indicate that how well a student had been doing in college in general influenced completion rates of these telecourses.

There are problems with using GPA as a predictor for success in distance education telecourses. First, the research cautions against using a single variable to predict drop-out. Although there may be a strong positive correlation with GPA and success in a particular course, other factors associated with high GPAs should be considered, such as study habits, motivation, goals, etc. This makes it difficult to improve completion percentages in these courses based on GPA because it is not certain that this single variable is the sole determinant of completion or drop-out.

Because GPA does have a correlative effect with completion, one possible strategy would be to only allow students with higher GPAs to take the courses. This presents a second problem specific to distance education courses. Traditionally distance education has been the key to increasing access (Kember, 1989). To cut off students because they do not make a certain academic "cut" would be to negate the primary function of distance education for many institutions.

Using student grade point averages to weed out "poor" students would not be acceptable to most institutions. However, the research does indicate that GPA, taken with other factors, is an important part of student integration which ultimately affects institutional drop-out (or retention). Spady (1971) discusses the importance of student integration (which he calls normative congruence) to retention and emphasizes that academic success plays an important role in that integration. He writes:

> . . . "normative congruence and friendship support, parallel the two elements that Durkheim uses to account for high degrees of social integration in the common life of society: moral consciousness and

> collective affiliations. Since so much of a college student's social role overlaps with his academic role, however, these two factors in conjunction with his academic aptitude and previous training (e.g. academic potential) may also influence intellectual development and formal academic performance. In my view, then, full integration into the common life of the college depends on successfully meeting the demands of both its social and academic systems. (p. 39)

Tinto (1975) goes a step further and contends that grade performance at the college level is an indication of both academic integration of the student and the student's acceptance of the institution's norms. He writes ". . . grade performance reflects, in part, the notion that the student is also being evaluated and judged by that system – an evaluation of the student's attributes and achievements in relation to the system's values and objectives. Grade performance becomes, then, both a reflection of the person's ability and of the institution's preferences for particular styles of academic behavior" (p. 104).

Although grade point average alone might not be helpful in addressing the problem of drop-out in distance education telecourses, taken as a key element of academic integration, it is possible to construct some practical policy. Lower GPAs correlate with potential noncompletion of distance education telecourses as a function of weak academic integration. One policy option might be to increase or enhance particular academic integration variables. These variables might include counseling, tutors, and other forms of academic assistance available to students taking these courses.

Another possible policy consideration is increasing faculty contact in the distance education telecourse. As a group, successful completers of the study's telecourse had higher GPAs. The lower average GPA of noncompleters could have been an indication of other related factors (such as poor study habits), that might have been rectified with increased faculty guidance.

Questions for Future Research

This study is intended to be a springboard for further research. Based on the results of this study, there are several areas that could be explored and additional questions that could be asked.

To begin with, four of the seven research questions for this study were answered using a very small, narrow respondent group. As noted earlier, this limited the generalizability of the results. A future study might draw from a larger sample and perhaps include several institutions, both two-year and four-year. In addition, the geographic limitation could be eliminated by using institutions from different parts of the country. Because of the nature of distance education, one possibility would be to survey several students from many different institutions and programs.

Another possibility for future research would be to use a comparison group in traditional classes. A comparison of student type (traditional or nontraditional) would be made and then compared across class type. In addition, it would be interesting to compare perceptions of faculty contact between completers and noncompleters in both class types.

An enhancement to this study, though difficult to accurately attain, would be to gauge actual faculty contact as opposed to perceived contact. This might be achieved by asking faculty or students to keep logs, though inaccurate self-reporting might be a problem. However, it might be possible to increase the accuracy of the self-report by including actual numbers of e-mail and written correspondence.

Future research might focus on the positive relationship of grade point average and successful completion of distance education telecourses. Other factors of academic performance might be studied including study habits, motivation, goals, and intentions. Students could be extensively surveyed to determine if there are significant differences between completers and noncompleters.

Another factor that was not included in this study but that might be of importance for future research is the impact of specific courses. The students in this study came from a variety of telecourses. Completion rates and especially perceptions of faculty contact might be considered on a course-by-course basis. A more detailed survey of faculty impressions could also be utilized to see if teaching style (or quality) had a bearing on a student's completion (or noncompletion). There has already been extensive research in this area pertaining to traditional courses and this could be expanded upon for the telecourses or for other distance education courses.

Finally, the distance education courses used for this study utilized a relatively old medium: television and video tapes and recorders. Most students, even older students, were probably comfortable with the use of these devices. However, the growth of personal computer and Internet use, even since this study began, leads to interesting questions about the use of more sophisticated media for distance education courses. Future research might again look for differences between traditional and nontraditional students in computer/Internet courses and explore the effects these devices have on completion or noncompletion of distance education courses.

APPENDIX I - Student Consent Form

To the Student:

I am a doctoral student at Florida State University and I am conducting a study on students who participate in distance education telecourses. Specifically I am examining retention rates (students who complete the course versus students who leave before the course is over) in an attempt to identify ways to improve students' success rates in these courses.

I am asking all students who are 18 years of age or older and taking distance education telecourses at Tallahassee Community College this semester to fill out two surveys. The first survey will be given to you at the beginning of the course and will ask some general information (name, address, etc.). The survey is short and probably will not take more than 10 minutes to complete. The second survey will be given to you at the end of the course. It will consist of 10 questions and should not take more than 10 minutes to complete. If you decide to leave the course before it is over, you will be asked to complete the survey either at Enrollment Services or by mail.

Participation in this study is completely voluntary and you may drop out at any time. **Participating or not participating in this study will not affect your grade in this course in any way**.

All information from both surveys will be kept confidential. Each student will be assigned a number by the researcher, and once all the data are collected, personal identifying information. will be destroyed. The instructor will be given the coded list and, at the end of the course, will indicate (anonymously) the final grades or the withdrawal status of each student.

Your participation in this study is greatly appreciated. If you are interested in the results of this study, please contact the Higher Education Department of Florida State University or contact the researcher directly.

Wendy Gilbert

Please sign below if you are willing to participate in this study. Again, it should be emphasized that participating or not participating in this study will not affect your grade in this course in any way.

By signing below I agree to participate in Wendy Gilbert's study on retention in distance education courses. I understand I will be asked to fill out two paper and pencil surveys. The total time commitment would be about 20 minutes, 10 minutes for each survey. I understand that to participate in the study I must be 18 years of age or older by the date of the first day of the telecourse.

I understand the purpose, procedures and potential benefits of the study as described above. I understand that my participation is voluntary and I may drop out of the study at anytime. I also understand that all of my personal information will be kept confidential and that my name will not appear on any of the results.

I understand that I may contact Wendy Gilbert, Florida State University, Department of Higher Education, Stone Building (850) 644-6777 or Dr. Barbara Mann, (850) 644-7077 for answers to questions about this research or my rights. Group results will be sent to me upon my request.

I have read and understand this consent form.

____

[Signature]

APPENDIX II - Survey Instrument A

Please complete the following questions as completely and honestly as possible. Some questions may require estimates, such as the number of college credit courses previously completed. Simply make the best estimate you can. You may used pen or pencil. The entire survey should probably take you no longer than 5-10 minutes to complete.

Name of course you are taking: ____________________________________

Please fill in the following as completely and honestly as possible.

1. Name ______________________________

Email Address:[if you have one] ________________________

Mailing Address: [street]____

[city]______________[state]_____ [zip code] ___________

[Name, address, and email address will be kept in the strictest confidence and none of these will appear anywhere in the study. This information is needed simply to follow progress of students from beginning to end of course. Once the essential data are recorded, all original surveys will be destroyed].

2. Can the researcher contact you for follow-up questions at the above mailing address or email address?

yes no [please circle one]

3. Birth date : (month/day/year) (_______/_______/_______)

4. Sex: M F

5. Do you have a physical disability?

yes no [please circle one]

If yes, please describe: ____

6. Estimated current grade point average _____________

7. Including this course, number of college credit hours currently taking (including college credit hours at another institution such as Florida A&M or Florida State Univ.) _______

[example: if you are taking four courses including this one, three credit hours each, your response would be "12."]

8. Number of telecourses you have previously completed with a grade of "C" or better _____.

[example: if you have previously registered for 3 telecourses and you withdrew from one and completed 2 with a grade of "C" or better, your response would be "2."]

9. Number of hours you spend working at a job and/or volunteering per week __________.

[example: if you work part time 10 hours a week and do approximately 2 hours of volunteer work per week, your response would be "12."]

10. Family status: please circle the response below which best describes your family situation:

a. single, no children

b. single with a child or children

c. married, no children

d. married, with a child or children.

e. other (please describe briefly) ________________________

- -

Thank you for your time and cooperation. If you are interested in the results of this study, please contact the Higher Education Department of Florida State University or contact the researcher directly.

APPENDIX III - Survey Instrument B

This survey will ask you questions about the amount and the ease of making of faculty contact you experienced in this distance education telecourse. **Faculty Contact** is defined as any type of interaction you had with the instructor. Examples might include telephone calls, face-to-face meetings, informal conversations, email messages, written letters, etc. The **amount** of faculty contact refers to how often you had contact with the instructor, regardless of whether you or the instructor initiated the contact. The **ease of making** of faculty contact refers to whether you feel that the instructor was available when you needed her/him and whether the instructor answered your questions adequately and in a timely manner. For example, was the instructor clear, prompt and complete when she/he answered your questions?

Please read the following 10 statements and respond to each statement by circling the corresponding letter(s) which best represents your opinion. The letters represent the following answers:

SD - Strongly Disagree D - Disagree A - Agree SA - Strongly Agree

Please note -- there are no right or wrong answers. Just be as honest as possible. All information you provide will be kept confidential. No one other than the researcher will see your answers as written. Eventually all students' answers will be coded and the original surveys will be destroyed.

1. The total amount of contact I had with the instructor of this telecourse was adequate.

SD D A SA

2. I had no trouble communicating with the instructor when I needed to.

SD D A SA

3. I could not reach the instructor (by phone or email) when I needed to ask questions.

SD D A SA

4. The total amount of contact I had with the instructor of this telecourse was inadequate.

SD D A SA

5. The amount of contact I had with the instructor helped me with completion of assignments and passing tests.

SD D A SA

6. I found it difficult to contact the instructor when I needed to.

SD D A SA

7. When I asked the instructor for assistance in this course (via email, phone messages, etc.), the instructor's response was usually clear and prompt.

SD D A SA

8. The amount of contact I had with the instructor of this telecourse was adequate for me to do well.

SD D A SA

9. I feel I did not have enough contact with the instructor to answer all of my questions and concerns about assignments and tests.

SD D A SA

10. It was easy to communicate with the instructor in this telecourse.

SD D A SA

APPENDIX IV - Instructor Permission Request

Dear Instructor:

I am a doctoral student in the Higher Education Department of Florida State University. I am working with Dr. Barbara Mann and my committee on a dissertation project related to distance education. Specifically, I am trying to determine which students may be more likely to drop out of a distance education course and what can be changed, if possible, to prevent students from dropping out in the future.

I am requesting your permission to administer a survey to your class at the first or second class meeting in the beginning of the semester, and to mail to students who cannot attend these meetings. I will provide all of the necessary materials (survey, pens/pencils, etc.). It should not take students more than 10 minutes to complete the survey which contains demographic information. At the end of the course, it will be necessary to match the surveys with the student's final grade to determine who successfully completed the course with a grade of C or better.

In addition, I would also like to have students fill out a simple follow-up survey at the end of the course. This survey would consist of 16 questions pertaining to the students' perceptions of faculty contact in a distance education telecourse.

The privacy of the students and the teachers will be protected. The names and addresses of students and teachers will not be listed anywhere in the study. A coding process will be used to identify students, corresponding data and final grades. Copies of both surveys are attached.

I appreciate your assistance and I will be happy to share the results of my study with anyone who is interested. Hopefully, the results of this study will lead to improvements in retention rates for students taking telecourses and other courses via distance educational methods.

I will follow up this request with a phone call and will be happy to answer any questions you may have. In addition, please contact me at any time if you would like to discuss the research. My home telephone number is (912) 226-2936 and my email address is rmvwag@rose.net.

Thank you again.

Sincerely,

Wendy Gilbert
enc

APPENDIX V - Informal Survey

I am researching the topic of drop-out from distance education courses. Specifically, I am studying the effects of student-faculty interaction and how it might influence students to stay in these courses.

I am interested in what you think student-faculty interaction is and how it might be measured. For example, would you count email as a type of student-faculty interaction? If you are willing to answer a few questions, it would be very helpful to me (but there are NO penalties for not participating!).

DIRECTIONS: Please answer the questions below as completely and as honestly as possible. THERE ARE NO WRONG ANSWERS!! Do not put your name on this sheet. Participation in this exercise is voluntary and will not affect your grade. It should not take you much more than 5 minutes to complete.

These questions refer to college courses in general (not this class and not necessarily distance education classes).

1. Briefly, how would you define student-faculty interaction? Please list some examples.

2. Would you be more likely to complete a course if you had greater student-faculty interaction? Or are you not affected by student-faculty interaction? Please explain.

3. What kinds of student-faculty interaction help you the most with your course work?

4. Please check any and/or all of the following which would apply to your definition of student-faculty interaction:

☐ You and the other students meeting the instructor face-to-face for class.

☐ The instructor calling on you in class.

☐ The instructor meeting with you before/after class to discuss an assignment.

☐ The instructor calling you at home about an assignment.

☐ The instructor returning a message to call you.

☐ The instructor writing notes to you about an assignment.

☐ The instructor emailing you about an assignment.

☐ The instructor making an appointment with you during his/her office hours.

☐ You and the instructor discussing **non-class** subjects right before or after class.

☐ Discussing **non-class** subjects in a social setting (i.e. a restaurant, club, the grocery store, etc.)

☐ You email the instructor about an assignment.

☐ You call the instructor about an assignment.

☐ You return a phone message to the instructor.

☐ You discuss family, job or other personal experiences with the instructor.

☐ Special help-sessions with both you (and the other students) and the instructor (e.g. reviews for the exam).

☐ Any others to add? ______________________________

THANKS FOR YOU HELP!!

APPENDIX VI - Human Subjects Committee Approval

APPENDIX VII - Comparison Tests for Respondent Group and All Telecourse Students

Grade Point Average Comparison Tests

Table 26: GPA Comparison Numbers Respondent Group and All Telecourse Students at TCC, Fall 1998

	N	**Mean GPA[a]**	**Standard Deviation**	**Standard Error Mean**
All Telecourse Students	215	2.28	.7283	.0497
Respondent Group	59	2.58	.7807	.1016

a. Those students who were in their first semester and had a grade point average of 0.00 were not included

Table 27: T-Test for Equality of GPA Means (Respondent Group, All Telecourse Students at TCC, Fall 1998)[a]

t	**df**	**sig. (2-tailed)**	**mean difference**	**standard error difference**	**95% conf. interval of the difference**	
					lower	**upper**
-2.590	87.659	.011	-.2929	.1131	-.5177	-0681

a. Equal variance were not assumed

Table 28: Respondent Group and All Telecourse Students at TCC, Fall 1998: Gender (Chi-Square and Fisher's Exact Tests)

	Value	df	Asymptomatic Significance (2-sided)	Exact Significance (2-sided)	Exact Significance (1-sided)
Chi-Square	4.587[a]	1	.032		
Fisher's Exact Test				.036	.021

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.64.

APPENDIX VIII - Free Food Advertisement

Free Food!!

Attention Telecourse Students!! You can receive free food from the Student Union just for filling out the enclosed survey.

11) It's easy! Just read and sign the permission form, read the directions, and complete the survey. Mail the completed form and survey back in the enclosed, stamped envelope.

12) It's quick! The whole thing should take you no more than 10 minutes.

13) It's free! For your effort, you will receive a $3.00 coupon to spend at any of the three snack shops at Tallahassee Community College's Student Union. That includes, subs, pizza, smoothies and more!

Don't miss out on this opportunity. Only TCC telecourse students age 18 or older are eligible. Food coupons will be mailed to you upon the receipt of your survey.

APPENDIX IX - First Letter Sent to Students With Second Survey

March 2, 1999

Dear Student:

Thank you for participating in the study on telecourses at Tallahassee Community College (TCC) last semester. Enclosed please find a food coupon worth $3.00 for use at the Subway at TCC's food court.

In this packet you will also find the second of two surveys. This survey is much shorter than the first (only 10 questions) and should take you no longer than 5 minutes to complete. For those of you who took more than one telecourse, you will find additional surveys. Please fill out the second survey and mail it in the addressed, stamped envelope. If you lose the envelope, the mailing address is on the survey. In addition, you may email your responses to wgilbert@mailer.fsu.edu.

Remember, your responses are completely confidential. Your final grade (or your decision to drop the course in certain cases) has no bearing on the survey. I am still interested in your responses.

Thank you again for your assistance. I am hoping the study will be complete later this year. If you are interested in the results of the study, you may contact me at the above address or email address, or you may contact Dr. Mann of the Department of Higher Education at Florida State University, 850-644-6777.

Sincerely,

Wendy Gilbert
Graduate Student
Department of Higher Education
Florida State University

APPENDIX X - Second Letter Sent to Students With Second Survey

April 13, 1999

Dear Student:

Thank you for participating in the study on telecourses at Tallahassee Community College (TCC). Earlier you should have received the second of two surveys needed for the completion of the study. I have enclosed a copy of that second survey in case you did not receive it and a self-addressed, stamped envelope. If you have already returned the survey, please disregard this mailing.

This survey is much shorter than the first (only 10 questions) and should take you no longer than 5 minutes to complete. For those of you who took more than one telecourse, you will find additional surveys. Please fill out the second survey and mail it in the addressed, stamped envelope. If you lose the envelope, the mailing address is on the survey. In addition, you may email your responses to wgilbert@mailer.fsu.edu.

Remember, your responses are completely confidential. Your final grade (or your decision to drop the course in certain cases) has no bearing on the survey. I am still interested in your responses.

Thank you again for your assistance. I am hoping the study will be complete later this year. If you are interested in the results of the study, you may contact me at the above email address, or you may contact Dr. Mann of the Department of Higher Education at Florida State University, 850-644-6777.

Sincerely,

Wendy Gilbert
Graduate Student
Department of Higher Education
Florida State University

REFERENCES

Astin, A. (1975). Preventing students from dropping out. San Francisco: Jossey-Bass Publishers.

Bean, J.P. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. American educational research journal, 22, (1), pp. 35-64.

Bean, J.P. (1986). Assessing and reducing attrition. In D. Hossler (Ed.), New directions for higher education, (pp. 47-61). San Francisco: Jossey-Bass, Inc.

Bean, J.P., and Metzner, B.S. (1985). A conceptual model of nontraditional undergraduate student attrition. Review of Educational Research, 55 (4), pp. 485-540.

Bernard, R.M., and Amundsen, C.L. (1989). Antecedents to dropout in distance education: Does one model fit all? Journal of Distance Education, 4 (2), pp. 25-46.

Billings, D. (1991, May). Learning style preferences and distance education: A review of literature and implications for research. Paper presented at the American Symposium on Research in Distance Education, Pennsylvania State University, University Park, PA.

Biner, P.M., Bink, M.L., Huffman, M.L., and Dean, R.S. (1995). Personality characteristics differentiating and predicting the achievement of televised-course students and traditional-course students, The American Journal of Distance Education, 9 (2), pp. 46-60.

Biner, P. (1994). Distance learner attitudes, demographics, and personalities and their relationship to college-level course performance. Unpublished manuscript. Ball State University, Department of Psychological Science, Muncie, Indiana.

Boshier, R. (1972). The development and use of a dropout prediction scale. Adult Education, 22 (2), pp. 87-99.

Boshier, R. (1973). Educational participation and dropout: A theoretical model. Adult Education, 23 (4), pp. 255-282.

Brindley, J.E. (1987). Attrition and completion in distance education: The student's perspective. Unpublished master's thesis, The University of British Columbia.

Brown, F.B. and Brown, Y. (1994). Distance education around the world. In B. Willis (Ed.), Distance education strategy and tools (pp.3-39). Englewood Cliffs, NJ: Educational Technology Publications.

Centra, J.A., and Rock, D. (1971). College environments and student academic achievement. American Educational Research Journal, 8 (4), pp. 623-634.

Cohen, A.M. and Brawer, F.B. (1989). The American Community College. San Francisco: Jossey-Bass Publishers.

Coldeway, D.O., and Spencer, R.E. (1980). The measurement of attrition and completion in distance learning courses. (Project REDEAL, Technical Report No. 8). Edmonton, Alberta, Canada: Athasbasca University.

Cordell, B. (1991). A study of learning styles and computer-assisted instruction. Computers & Education, 16 (2), pp. 175-183.

Cross, P. (1981). Adults As Learners. San Francisco: Jossey-Bass.

Dille, B. and Mezack, M. (1991). Identifying predictors of high risk among community college telecourse students. The American Journal of Distance Education, 5 (1), pp. .

Durkheim, E. (1951). Suicide. Translated by J.A. Spaulding and G. Simpson. Glencoe: The Free Press.

Garland, M. (1993). Ethnography penetrates the "I didn't have time" rationale to elucidate higher order reasons for distance education withdrawal. Research in Distance Education, 5 (2), 6-10.

Garrison, D.R. (1987). Researching dropout in distance education. Distance Education, 8(1), 95-101.

Garrison, D.R., and Baynton, M. (1987). Beyond independence in distance education: The concept of control. The American Journal of Distance Education, 1 (3), 3-15.

Gibson, C.C., and Graff, A.O. (1992). Impact of adults' preferred learning styles and perception of barriers on completion of external baccalaureate degree programs. Journal of Distance Education, 7 (1), pp. 39-51.

Guernsey, L. (1998). Distance education for the not-so-distant. The chronicle of higher education, 46 (29). pp. A29-A30.

Gunawardena, C.N., and Boverie, P.E. (1992, November). Impact of learning styles on instructional design for distance education. Paper presented at the World Conference of the International Council of Distance Education, Bankok, Thailand.

Holmberg, B. (1986). Growth and structure of distance education. Beckenham, Kent: Croom Helm Ltd.

James, W.B., Blank, W.E., Morrison, D., Koch, K., Shapiro, A.,, Schiaper, L., and Tindell, M. (1996). Learning styles: Are they fact or fiction? In H. Reno and M. Witte (Eds.), 37th Annual Adult Education Research Conference Proceedings (pp. 338-343). The University of South Florida, Tampa, Florida, May 16-19.

James, W.B., and Gardner, D.L. (1995). Learning styles: Implications for distance learning. New Directions for Adult and Continuing Education, 67, pp. 19-31.

Keegan, D. (1986). The foundations of distance education. Dover, NH: Croom Helm.

Kember, D. (1981). Some factors affecting attrition and performance in a distance education course at the University of Papua New Guinea. Distance Education, 2 (2), pp. 164-188.

Kember, D. (1989). A longitudinal-process model of drop-out from distance education. Journal of Higher Education, 60 (3), 278-301.

Kember, D. (1995). Open learning courses for adults: A model of student progress. Englewood Cliffs, CA: Educational Technology Publications.

Krathwohl, D.R. (1993). Methods of educational and social science research: An integrated approach. White Plains, NY: Longman Publishing Group.

Lenning, O. T. (1982). Variable-selection and measurement concerns. In E.T. Pascarella (Ed.), New Directions for institutional research (pp. 35-53). San Francisco: Jossey-Bass Inc.

Mish, F.C. (Ed.). (1984). Webster's ninth new collegiate dictionary. Springfield, MA: Merriam-Webster, Inc.

Mottet, T. P. (2000). Interactive television instructors' perceptions of students' nonverbal responsiveness and their influence on distance teaching. Communication education, 49 (2), pp. 146-164.

Oliver, E.L. (1994). Video tools for distance education. In B. Willis (Ed.), Distance education strategy and tools (pp.3-39). Englewood Cliffs, NJ: Educational Technology Publications.

Pascarella, E.T. (1980). Student-faculty informal contact and college outcomes. Review of educational research, 50 (4), pp. 545-595.

Pascarella, E.T., and Terenzini, P.T. (1979). Interaction effects in Spady's and Tinto's conceptual models of college dropout. Sociology of Education, 52 (4), pp. 197-210.

Pascarella, E.T., and Terenzini, P.T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. Journal of Higher Education, 51 (1), pp. 60-75.

Pascarella, E.T., and Terenzini, P.T. (1998). Studying college students in the 21st century: Meeting new challenges. The review of higher education, 21 (2), pp. 151-165.

Roberts, D. (1984). Ways and means of reducing early student drop-out rates. Distance Education, 5 (1), pp. 50-71.

Rumble, G. (1986). The planning and management of distance education. Beckenham, Kent: Croom Helm Ltd.

Seehusen, V. (2000). A consortial approach to distance education delivery and management. Community college journal of research and practice, 24 (1), pp. 27-36.

Siegel, S. and Castellan, N.J., Jr. (1988). Nonparametric statistics for the behavioral sciences (2nd ed.). New York: McGraw-Hill, Inc.

Spady, W. G. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. Interchange, 1 (1), pp. 64-85.

Spady, W.G. (1971). Dropouts from higher education: Toward an empirical model. Interchange, 2 (3), pp. 38-62.

Sweet, R. (1986). Student dropout in distance education: An application of Tinto's model. Distance Education, 7 (2), 201-213.

Tallahassee Community College, (July, 1997). The bulletin of Tallahassee community college, catalog 1997, 21 (4), Tallahassee, FL: Tallahassee Community College.

Terenzini, P.T. (1982). Designing attrition studies. In E.T. Pascarella (Ed.), New Directions for institutional research (pp. 55-71). San Francisco: Jossey-Bass Inc.

Terenzini, P.T., and Pascarella, E.T. (1977). Voluntary freshman attrition and patterns of social and academic integration in a university: A test of a conceptual model. Research in Higher Education, 6 (1), pp. 25-43.

Threlkeld, R., and Brzoska, K., (1994). Research in distance education. In B. Willis (Ed.), Distance Education Strategy and Tools (pp. 41-66). Englewood Cliffs, NJ: Educational Technology Publications.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. Review of Educational Research, 45 (1), 89-125.

Tinto, V. (1987). Leaving college. Chicago: The University of Chicago Press.

Towles, D.E., Ellis, J.R., and Spencer, J. (1993). Student persistence in a distance education program: The effect of faculty-initiated contact. Paper presented at the Annual Forum of the Association for Institutional Research, Chicago: May 16-19.

Tuckman, B. (1994). Conducting educational research (4th ed.) Orlando, FL: Harcourt Brace & Company.

van Gennep, A. (1960). The rites of passage. Translated by M. B. Vizedom and G.L. Caffee. Chicago: The University of Chicago Press.

Woodley, A., and Parlett, M. (1983). Student drop-out. Teaching at a Distance, 24, 2-23.

Zajkowski, M.E. (1997). Price and persistence in distance education. Open Learning, 12 (1), 12-23.

BIOGRAPHICAL SKETCH

Wendy Gilbert was born in Waukegan, Illinois and spent most of her life growing up in southern New Jersey. She graduated from Mainland Regional High School in Linwood, New Jersey in 1984. In 1988 she graduated from Virginia Polytechnic and State University with a B.A. in International Relations. In 1991 she received her M.S. in International Affairs from Florida State University, with a concentration in college teaching. She received her Phd. in Higher Education from Florida State University in 2000.

Dr. Gilbert has worked as an intern with the Florida State Senate, Committee on Higher Education and has done research for the Postsecondary Education Planning Commission. She has taught political science and international affairs courses at Tallahassee Community College as an adjunct instructor. She has also worked in the college's Extended Studies Division as a Program Coordinator.

Dr. Gilbert currently resides in Bowie, Maryland with her husband and two daughters.